GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 83.140.10

CCS G 32

GB/T 41169-2021

Paper, aluminum foil and plastic laminated film and pouch for food packaging

食品包装用纸铝塑复合膜、袋

Issued on: December 31, 2021 **Implemented on: July 01, 2022**

Issued by: State Administration for Market Regulation;
Standardization Administration of the People's Republic of China.

Table of Contents

Paper, aluminum foil and plastic laminated film and pouch for food packaging

1 Scope

This Standard specifies terms, definitions, abbreviations, classification, requirements, test methods, inspection rules and marking, packaging, transportation and storage for paper, aluminum foil and plastic laminated film and pouch for food packaging.

This Standard is applicable to the film and pouch for food packaging that are made of plastic, aluminum foil and paper, with a thickness of less than 0.3mm.

This Standard does not apply to liquid food packaging films, pouches; and films and pouches that need to be sterilized.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 191, *Packaging and storage marks*

GB/T 451.2, *Paper and board - Determination of grammage*

GB/T 1037-1988, *Test method for water vapor transmission of plastic film and sheet. Cup method*

GB/T 1038-2000, *Plastics - Film and Sheeting - Determination of Gas Transmission - Differential-pressure Method*

GB/T 1040.3-2006, *Plastics - Determination of Tensile Properties - Part 3: Test Conditions for Films and Sheets*

GB/T 2828.1-2012, *Sampling procedures for inspection by attributea - Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

GB/T 2918-2018, *Plastics - Standard atmospheres for conditioning and testing*

GB/T 6673, *Determination of Length and Width of Plastics Film and Sheeting*

GB/T 7707, *The intaglio prints for decorating*

GB/T 8808, *Test method for peel force of flexible laminated plastics*

GB/T 10006, *Plastics - Film and sheeting - Determination of the coefficients of friction*

GB 12904, *Bar code for commodity - Retail commodity numbering and bar code marking*

GB/T 14257, *Bar code for commodity - Bar code symbol placement guidelines*

GB/T 14258, *Information technology - Automatic identification and data capture techniques - Verification of print quality of bar code symbols*

GB/T 17497.1, *Decorative products by flexographic printing - Part 1: Paper*

GB/T 17497.2, *Decorative products by flexographic printing - Part 2: Plastic film and foil*

GB/T 18348, *Bar code for commodity - Bar code symbol print quality verification*

GB/T 19789-2005, *Packaging materials - Test method for oxygen gas permeability characteristics of plastic film and sheeting - Coulometric sensor*

GB/T 21049, *Han Xin code*

GB/T 21302-2007, *General rules of laminated films & pouches for packaging*

GB/T 22364, *Paper and board - Determination of bending resistance*

GB/T 26253-2010, *Determination of water vapour transmission rate for plastics-film and sheeting - Infrared detection sensor method*

QB/T 1130-1991, *Plastics Angle Tear Performance Test Method*

QB/T 2358-1998, *Test Methods for Thermal Sealing Strength of Plastic Film Packaging Bag*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 paper, aluminum foil, plastic laminated film and pouch

films and bags made of paper, aluminum foil and plastic

Conduct visual inspection under natural light. Measure with a measuring tool with an accuracy of not less than 0.5mm.

6.3.2 Printing quality

6.3.2.1 Gravure printing quality

According to the provisions of GB/T 7707.

6.3.2.2 Flexographic printing quality

According to the provisions of GB/T 17497.1 or GB/T 17497.2.

6.3.2.3 Barcode printing quality

According to the provisions of GB/T 18348 and GB/T 14258.

6.3.2.4 Han Xin code printing quality

According to the provisions of GB/T 21049.

6.3.3 Mass per unit area (quantitative) deviation

Measure in accordance with the provisions of GB/T 451.2.

6.4 Size deviation

6.4.1 Size deviation of roll film

6.4.1.1 Length and width deviation shall be carried out in accordance with the provisions of GB/T 6673.

6.4.1.2 Repeated length deviation is measured with a measuring tool with an accuracy of not less than 0.5mm. Steps: Use a steel ruler to flatten and compress the test sample. The tick marks are aligned with the edge of the printed electric eye. Take as many printing units as possible within 1m. Read the data. Then take the average value.

6.4.2 Size deviation of pouch

6.4.2.1 Length and width deviation shall be carried out in accordance with the provisions of GB/T 6673.

6.4.2.2 Use a measuring tool with an accuracy of not less than 0.5mm to measure the sealing width of the pouch and the distance between the seal and the edge of the pouch.

6.4.3 Core size and deviation

Use a vernier caliper with a resolution of 0.1mm.

6.4.4 Joint

Visually inspect. The joints shall be clearly marked.

6.5 Physical and mechanical properties

6.5.1 Breaking force

According to the provisions of GB/T 1040.3-2006.

The specimen is in the form of a long strip. The length is ≥150mm. The width is 15mm±0.5mm. The specimen clamp spacing is 100mm±1mm. The tensile speed of the specimen is 100mm/min±10mm/min. The breaking force is the maximum force during the stretching process.

6.5.2 Peel force

According to the provisions of GB/T 8808.

6.5.3 Adhesion

The adhesion between plastic and paper, aluminum foil and paper shall be carried out according to the provisions of Annex A.

6.5.4 Heat sealing strength

Carry out according to the regulations of QB/T 2358-1998 for pouches.

If it leaves the factory in the form of roll film, it shall be carried out in accordance with the provisions of Annex B. The heat sealing conditions can be negotiated by both parties.

6.5.5 Right angle tear performance

According to the provisions of QB/T 1130-1991.

6.5.6 Oxygen transmission rate

According to the provisions of GB/T 1038-2000 or GB/T 19789-2005. For the composite film with paper as inner layer or paper as sub-inner layer, when testing, orient the paper towards the high concentration side. The aluminum foil faces the low concentration side. GB/T 1038-2000 is the arbitration method.

6.5.7 Water vapor transmission

Carry out according to GB/T 1037-1988 or GB/T 26253-2010. The test conditions: the temperature is 38℃ ± 0.6℃; the relative humidity is 90% ± 2%. When testing, plastic or aluminum foil faces the low humidity side. GB/T 1037-1988 is the arbitration method.

6.5.8 Stiffness

According to the provisions of GB/T 22364.

6.5.9 Pressure resistance test

Carry out according to the provisions of 6.5.10 in GB/T 21302-2007.

6.5.10 Drop test

Carry out according to the provisions of 6.5.11 in GB/T 21302-2007.

6.5.11 Friction coefficient

According to the provisions of GB/T 10006.

7 Inspection rules

7.1 Inspection classification

Product inspection is divided into exit-factory inspection and type inspection.

7.2 Exit-factory inspection

7.2.1 Batching

Products of the same category, the same material structure, and the same specification that are continuously produced with the same raw materials and the same process is a batch. The largest batch of the film does not exceed 500,000m^2. The maximum batch size of pouches shall not exceed 1,500,000 pieces.

7.2.2 Inspection item

The exit-factory inspection items include appearance quality (5.1), printing quality (5.2), size deviation (5.4), peel force (5.5.1), adhesion (5.5.1), breaking force (5.5.2), heat sealing strength (5.5.3), pouch pressure resistance (5.5.5), pouch drop performance (5.5.6).

7.3 Type inspection

7.3.1 Inspection item

The inspection items are all the items specified in Chapter 5.

7.3.2 Inspection frequency

In one of the following situations, type inspection shall be carried out:

a) When a new product is tested for type identification;

b) When there are major changes in raw materials and processes, which may affect product performance;

7.4.3 Use random sampling method for physical and mechanical properties. Sufficient test samples are drawn from each batch for testing.

7.5 Determination for conformity

7.5.1 Determination for rejected item

7.5.1.1 For appearance, printing quality and size deviation, if one of them fails, the roll may only be rejected.

7.5.1.2 If there are any failed items in the physical and mechanical properties test results, double the number of samples shall be taken from the original batch to reinspect the failed item. If the reinspection results all pass, this item shall be accepted.

7.5.2 Determination of accepted batch

7.5.2.1 Appearance quality, printing quality and size deviation are determined according to Table 12.

7.5.2.2 The pressure resistance and drop performance of the pouch are determined according to Table 13.

7.5.2.3 If the test results of all items meet the requirements of this document, the batch of products shall be accepted.

8 Marks, packaging, transportation and storage

8.1 Marks

Each package of the product shall be accompanied by a certificate of conformity and marked with the product name, category, specification, conditions of use (temperature, time), quantity, quality, batch number, production date, inspector code, p producer, producer address and reference to this document.

8.2 Packaging

The product is internally packaged with paper or plastic film that meets the requirements of food packaging.

8.3 Transportation

Avoid collision or contact with sharp objects when transporting. Carefully load and unload. At the same time, avoid sun and rain to ensure that the packaging is intact, and the product is not contaminated. The marking method is carried out in accordance with the provisions of GB/T 191.

8.4 Storage

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------