

ICS 83.140.10



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

GB/T 477-2008

**Method for size analysis of coal
(English Translation)**

Issued on: January 9, 2017

Implemented on: July 1, 2017

Issued by: Ministry of Industry and Information Technology of PRC

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative references...	4
3 Requirements...	5
4 Test method...	6
5 Inspection rules...	10
6 Marking, packaging, transportation, storage...	11

1 Scope

This standard specifies the requirements, test methods, inspection rules, marking, packaging, transportation, storage of heat sealing biaxially oriented polyethylene terephthalate film.

This standard is applicable to heat sealing biaxially oriented polyethylene terephthalate film (hereinafter referred to as film), which is made of polyethylene terephthalate as the main raw material, through multi-layer co-extrusion and biaxially oriented process.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document;

for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

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

- Desiccant method and water method

GB/T1038-2000 Plastics - Film and sheeting - Determination of gas transmission -

Differential-pressure method

GB/T 1040.1-2006 Plastics - Determination of tensile properties - Part 1: General principles

GB/T 1040.3-2006 Plastics - Determination of tensile properties - Part 3: Test conditions for films and sheets

GB/T 2410-2008 Determination of the luminous transmittance and haze of transparent plastics

GB/T 2828.1-2012 Sampling procedures for inspection by attributes - Part 1:

Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 2918-1998 Plastics - Standard atmospheres for conditioning and testing

GB/T 6672-2001 Plastics film and sheeting - Determination of thickness by

After cutting off 3 ~ 5 layers of film on the outer surface of the film roll to be tested, cut the specimens according to the requirements of the test items.

4.3 Appearance

Visually inspect under natural light or 40 W fluorescent lamp; the sampling area shall not be less than 1 m².

4.4 Length deviation and width deviation

The test shall be carried out in accordance with the provisions of GB/T 6673-2001.

4.5 Thickness deviation

The test shall be carried out in accordance with the provisions of GB/T 6672-2001. The instrument measurement accuracy shall not be less than 1 μm . First sample multiple layers; remove the upper and lower layers; then test 10 layers.

The average thickness deviation shall be calculated according to formula (1):

Where:

Wa - Average thickness deviation, %;

δ_1 - Average thickness, in micrometers (μm);

δ_0 - Nominal thickness, in micrometers (μm).

The thickness limit deviation shall be calculated according to formula (2):

Wu - Thickness limit deviation, %;

δ_2 - Maximum (minimum) thickness, in micrometers (μm);

δ_0 - Nominal thickness, in micrometers (μm).

4.6 Tensile strength and nominal strain at break

The test shall be carried out in accordance with the provisions of GB/T 1040.1-2006 and GB/T 1040.3-2006, using type 2 specimens which have a specimen width of 15 mm; the initial fixture spacing is 100 mm; the test speed is (100 ± 10) mm/min; the longitudinal and transverse directions are tested, respectively. The number of specimens is 5 each. The results are taken as the arithmetic average.

4.7.1 Test instruments

The test instruments are as follows:

- a) Oven, accuracy ± 1 °C;
- b) Vernier caliper, accuracy 0.02 mm.

4.7.2 Specimens

The specimen size is 100 mm x 100 mm; the number of specimens is 5. Mark 1 line each in the longitudinal and transverse directions, indicating the longitudinal and transverse directions. Use a steel ruler, which has a graduation value of 0.5 mm, to measure the length of the two lines.

4.7.3 Test steps

Adjust the oven temperature to (150 ± 3) °C. Quickly put the specimen in and start timing. The specimen is placed flat, kept for 30 minutes. Take it out. After cooling to the test environment temperature, measure the longitudinal and transverse lengths of the specimen. Calculate the thermal shrinkage of the specimen. Take the arithmetic mean as the measurement result, accurate to 1 decimal place.

4.7.4 Calculation

See formula (3)

Where:

- S - Heat shrinkage, %;
- L0 - Length before heating, in millimeters (mm);
- L1 - Length after heating, in millimeters (mm).

4.8 Haze

Test according to GB/T 2410-2008.

4.9 Gloss

Test according to GB/T 8807-1988, with an incident angle of 45°.

4.10.1 Test instrument

Test instruments are as follows:

- a) Heat sealer, which has a temperature fluctuation range of ± 1 °C;

b) Tensile tester.

4.10.2 Specimens

Cut 5 specimens uniformly in the width direction of the film roll, which have a length of 150.0 mm and a width of (15.0 ± 0.1) mm.

4.10.3 Steps

During the test, overlap the specimens. Align the two ends and place them flat on the welding surface of the heat sealer for heat sealing. The heat sealing temperature is $125\text{ }^{\circ}\text{C}$; the heat sealing welding surface pressure is 0.18 MPa; the heat sealing time is 1 s. With the heat sealing part as the center line, clamp the two ends of the specimen on the two clamps of the tensile tester respectively, so that the longitudinal axis of the specimen coincides with the center line of the upper and lower clamps. The clamps are appropriately tight, to prevent the specimen from slipping and breaking in the clamps.

The initial spacing between the clamps is 100 mm; the test speed is (100 ± 10) mm/min.

Read the maximum load when the specimen breaks. If the specimen does not break at the heat seal, the specimen is invalid and another specimen is taken for re-test.

4.10.4 Result calculation

The test result is based on the arithmetic mean of 5 specimens, which is expressed in N/15 mm.

4.11 Wetting tension of treated surface

The test is carried out in accordance with the provisions of GB/T 14216-2008.

4.12 Friction coefficient

Test according to GB/T 10006-1998.

4.13 Oxygen permeability coefficient

Test according to GB/T 1038-2000.

4.14 Water vapor permeability coefficient

.....