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GB/T 12027-2004 / ISO 11501:1995

Replacing GB 12027-1989

Plastics - Film and sheeting - Determination of dimensional change on heating

塑料 薄膜和薄片 加热尺寸变化率试验方法

(ISO 11501:1995, IDT)

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Foreword

This standard is identical to the international standard ISO 11501:1995 *Plastics - Film and sheeting - Determination of dimensional change on heating*.

This standard replaces GB/T 12027-1989 *Test method for dimensional stability of plastic films*.

Compared with GB/T 12027-1989, the main changes in this standard are as follows:

-- Revision of the name: The English name is the same as ISO 11501, and the Chinese name is "Plastics - Film and sheeting - Determination of dimensional change on heating".

-- Revision of the scope: The scope of application of this standard includes plastic sheet products, and clearly stipulates that this test method is a test method for determining dimensional changes under heating conditions.

-- The chapter "Principle" is added (see Chapter 3).

-- The chapter "Apparatus" is added (see Chapter 4).

-- The specimen size is 120 mm×120 mm, and the marking length is 100 mm×100 mm (see 5.1 of the 1989 edition; see Figure 1 of Chapter 6 of this edition).

-- The following test steps are added: a. Put the metal container with the kaolin bed into the oven and heat it to the test temperature; b. Place the sample flat on the kaolin bed and cover it with a thin layer of kaolin (see Chapter 6).

-- The chapter "Precision" is added (see Chapter 8).

-- Appendix A is added (see Appendix A).

Appendix A of this standard is an informative appendix.

This standard replaces GB/T 12027-1989 from the date of implementation.

This standard was proposed by China National Light Industry Council.

This standard shall be under the jurisdiction of the National Technical Committee on Plastic Products of Standardization Administration of China.

This standard was drafted by the Institute of Plastic Processing and Application of Light Industry.

Main drafters of this standard: Chen Qian.

Plastics - Film and sheeting - Determination of dimensional change on heating

1 Scope

This standard specifies test methods for the determination of longitudinal and transverse dimensional changes in plastic films and sheets when heated. This method is suitable for the determination of dimensional changes in thermo-shrinking or non-thermo-shrinking plastic sheets with a thickness of less than 1 mm.

2 Normative references

The provisions in the following documents become the provisions of this standard through reference in this standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this standard, however, parties who reach an agreement based on this standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest editions of the referenced documents apply to this standard.

GB/T 2918-1998 Plastics - Standard atmospheres for conditioning and testing (idt ISO 291:1997)

3 Principle

Tests include:

a) Separate determination of the initial length between two specified length marks in the longitudinal and transverse directions of each specimen;

b) The specimen is placed on the kaolin bed in the oven and heated according to the specified temperature and time;

c) After the specimen is cooled, the lengths between the longitudinal and transverse marks are measured again and then the dimensional changes are calculated.

4 Apparatus

4.1 Air circulation oven: The capacity of the oven shall be such that the total volume of

the test group (including the kaolin bed and the sample) does not exceed 10% of its capacity, and the test group shall be placed on the inner rack of the oven at least 50 mm apart from each other and from the oven wall.

The rate of circulation of air in the oven shall be at least 6 air changes per hour. The temperature of the oven shall be controlled to maintain within ±2 °C of the specified test temperature of the test group (the range is ±1 °C if the specified test temperature is lower than 100 °C).

4.2 Metal container: The metal container shall contain a kaolin bed with a thickness of approximately 20 mm; its size shall be such that the specimen can be placed flat on it without deformation, and it can be placed in the oven.

4.3 Temperature-measuring device: The probe of the temperature-measuring device shall be able to be immersed in the kaolin bed.

4.4 Measuring tool: The accuracy shall be 0.5 mm.

4.5 Stopwatch.

5 Specimens

Before specimen preparation and measurement, the sample shall be conditioned in a standard environment specified in GB/T 2918-1998 for at least 2 hours.

Prepare three specimens. Take a specimen of about 120 mm×120 mm from the middle and both sides of a film or sheet. When the specimen is cut, it shall be at least 50 mm away from the edge of the film or sheet.

6 Test steps

The metal container (4.2) containing the kaolin bed is placed in the oven (4.1), and the temperature is controlled such that the kaolin bed is within the specified temperature.

Mark the longitudinal (or machine) and transverse directions of the specimen as shown in Figure 1, and mark the initial longitudinal and transverse lengths (L_0 and T_0) in the middle of the specimen. Measure separately with a measuring tool (4.4), accurate to 0.5 mm.

The specimen is laid flat on the kaolin bed, covered with a thin layer of kaolin, and maintained at the specified temperature during the time required by the material.

Appendix A is an example of test temperatures and heating times for various film and sheet materials.

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