

INTERNATIONAL  
STANDARD

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**11501**

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**Plastics — Film and sheeting —  
Determination of dimensional change on  
heating**

*Plastiques — Film et feuille — Détermination de la variation  
dimensionnelle après chauffage*



Reference number  
ISO 11501:1995(E)

## Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11501 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

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# Plastics — Film and sheeting — Determination of dimensional change on heating

## 1 Scope

This International Standard specifies a method of determining the dimensional change, in the longitudinal and transverse directions, of plastic films and sheeting on heating. This method may be applied to plastic sheets, whether qualified as thermoshrinking or not, up to 1 mm thick.

## 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 291:1977, *Plastics — Standard atmospheres for conditioning and testing*.

## 3 Principle

The test consists of

- a) measuring the initial lengths of two gauge lengths marked on each specimen in the longitudinal and in the transverse direction;
- b) heating the specimens for a specified time at a specified temperature on a kaolin bed in an oven;
- c) measuring the longitudinal and transverse gauge lengths again after cooling, and subsequently calculating the changes in the gauge lengths.

## 4 Apparatus

**4.1 Circulating-air oven**, of such a size that the total volume of the test assemblies (kaolin beds plus test specimens) does not exceed 10 % of the free space in the oven. Provision shall be made for placing the test assemblies on shelves so that they are not less than 50 mm from each other and from the sides of the oven.

Provision shall be made for circulation of air through the oven at a rate which gives a minimum of six air changes per hour. The temperature of the oven shall be thermostatically controlled to maintain the temperature of the test assemblies within  $\pm 2$  °C of the specified temperature (within  $\pm 1$  °C if the specified temperature is less than 100 °C).

**4.2 Metal container**, containing a kaolin bed of depth approximately 20 mm. Its other dimensions shall be such that the specimens can be placed flat within it, without deformation, and such that it can be placed in the oven.

**4.3 Temperature-measuring device**, whose tip can be immersed in the kaolin bed.

**4.4 Graduated scale**, capable of measuring to the nearest 0,5 mm.

**4.5 Stopwatch.**

## 5 Test specimens

Samples of film or sheet shall be conditioned for a minimum of 2 h in one of the standard atmospheres specified in ISO 291 prior to cutting out and measuring test specimens.

Three specimens shall be prepared, with approximate dimensions of 120 mm × 120 mm, cut from the cen-