INTERNATIONAL STANDARD

ISO 15106-5

First edition
2015-04-15

Plastics — Film and sheeting — Determination of water vapour transmission rate —

Part 5: Pressure sensor method

Plastiques — Film et feuille — Détermination du coefficient de transmission de vapeur d'eau —

Partie 5: Méthode en pression différentielle

Reference number
ISO 15106-5:2015(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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The committee responsible for this document is ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

ISO 15106 consists of the following parts, under the general title *Plastics — Film and sheeting — Determination of water vapour transmission rate*:

— *Part 1: Humidity detection sensor method*

— *Part 2: Infrared detection sensor method*

— *Part 3: Electrolytic detection sensor method*

— *Part 4: Gas-chromatographic detection sensor method*

— *Part 5: Pressure sensor method*

— *Part 6: Atmospheric pressure ionization mass spectrometer method*

— *Part 7: Calcium corrosion method*

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Plastics — Film and sheeting — Determination of water vapour transmission rate —

Part 5: Pressure sensor method

1 Scope

This part of ISO 15106 specifies a method for determining the water vapour transmission rate of plastic film, plastic sheeting, and multi-layer structures including plastics, using a pressure sensor.

NOTE The method provides rapid measurement over a wide range of water vapour transmission rates.

2 Terms and definitions

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

2.1
water vapour transmission rate
amount of water vapour transmitted through unit area of test specimen per unit time under specified conditions

Note 1 to entry: Water vapour transmission rate is expressed in grams per square metre per 24 h [g/(m^2 · 24 h)].

3 Principle

A test specimen is mounted in a transmission cell (see Figure 1) forming a sealed barrier between two chambers. The upstream chamber is usually the high-pressure side and the downstream chamber is usually the low-pressure side. The downstream chamber and the upstream chamber are evacuated after introducing the test specimen into the transmission cell. After the evacuation, water vapour is introduced into the upstream chamber. The water vapour permeates from the upstream chamber to the downstream chamber. The amount of water vapour which permeates through the test specimen is determined by the increase of the pressure in the downstream chamber.

4 Test specimens

4.1 The specimens shall be representative of the material, free from wrinkles, creases and pinholes, and have uniform thickness. Each specimen shall have a larger area than the transmission area of the cell.

NOTE Uneven final products are not suitable for the specimens to avoid water vapour leakage.

4.2 Three specimens shall be tested unless otherwise specified or agreed between the interested parties.

5 Conditioning

The specimens shall be conditioned at the same temperature and humidity as specified for the test for a length of time appropriate to the material under test, unless otherwise agreed between the interested parties.

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