

SINGAPORE STANDARD

Methods of test for flexible plastic packaging materials

– Part E2 : Standard test method for determining
gas permeability characteristics of plastic film and
sheeting

(This Singapore National Standard is based on ASTM D1434 – 82 (09), Standard test method for determining gas permeability characteristic of plastic film and sheeting, Copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken PA 19428, USA.)

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Singapore Food Manufacturers' Federation
Superior Multi-Packaging Limited
The Plastics and Rubber Institute of Singapore
TÜV SÜD PSB Pte Ltd

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National Foreword

This Singapore Standard was prepared by the Working Group on Methods of test for flexible plastic packaging materials appointed by the Technical Committee on Packaging which is under the purview of the General Engineering and Safety Standards Committee.

It is a revision of SS 323 : Part E2 : 1987 (1996). This Singapore Standard is a modified adoption of ASTM D1434 – 82 (09), “Standard test method for determining gas permeability characteristic of plastic film and sheeting”, Copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken PA 19428, USA. Reprinted by permission of ASTM International.

The modifications are given as follows:

Clause / Subclause	Modifications
7.1	<i>Replace “23 ± 2 °C” with 25 ± 2 °C”.</i> Explanation: To suit local working environment conditions.
Clause 11, Note 5	<i>Replace “23 °C is 13.54 g/mL” with “25 °C is 13.53 g/mL”.</i> Explanation: To correspond the density of mercury with the local working environment.
Clause 20, Note 13	<i>Replace “933 Pa at 23 °C” with “19.9 mm Hg at 25 °C”.</i> Explanation: To correspond the vapour pressure of 4-Methyl-2-pentanone (19.9 mm Hg) with the local working environment (25 °C). Reference is made to IARC (International Agency for Research on Cancer).
21.5	<i>Replace “23 °C” with “25 °C”.</i> Explanation: To suit local working environment conditions.

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NOTE

1. *Singapore Standards are subject to periodic review to keep abreast of technological changes and new technical developments. The changes in Singapore Standards are documented through the issue of either amendments or revisions.*
2. *Compliance with a Singapore Standard does not exempt users from legal obligations.*

Methods of test for flexible plastic packaging materials – Part E2 : Standard test method for determining gas permeability characteristics of plastic film and sheeting¹

1 Scope

1.1 This test method covers the estimation of the steady-state rate of transmission of a gas through plastics in the form of film, sheeting, laminates, and plastic-coated papers or fabrics. This test method provides for the determination of (1) gas transmission rate (GTR), (2) permeance, and, in the case of homogeneous materials, (3) permeability.

1.2 Two procedures are provided:

1.2.1 Procedure M—Manometric.

1.2.2 Procedure V—Volumetric.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2 Referenced documents

2.1 ASTM Standards:²

D618 Practice for Conditioning Plastics for Testing

D1898 Practice for Sampling of Plastics (Withdrawn 1998)³