

SINGAPORE STANDARD

Methods of test for flexible plastic packaging materials

– Part C2 : Plastics film and sheeting –
Determination of impact resistance by the free-
falling dart method – Staircase methods

SS 323 : Part C2 : 2013
(ICS 55.040; 83.140.10)

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Singapore Polytechnic

Superior Multi-Packaging Limited

The Plastics and Rubber Institute of Singapore

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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 C2 : 1987. This revision is an identical adoption of International Standard ISO 7765-1 : 1988 , First edition 1988-12-15, "Plastics film and sheeting – Determination of impact resistance by the free-falling dart method, Part 1 : Staircase method" (confirmed in 2009). The Singapore Standard has been revised to be in line with current Singapore industry practices and requirements.

Attention is drawn to the following:

1. Where the words 'this part of ISO 7765' appear, they should be interpreted as 'this part of SS 323'.
2. The comma has been used throughout as a decimal marker in ISO 7765-1, whereas in Singapore Standards it is a practice to use a full-point on the baseline as the decimal marker.

In preparing this standard, the Working Group reviewed BS 2782-3: Method 352F: 1996, which is identical with ISO 7765 : 1994 'Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Part 2 : Instrumented puncture test', and decided not to adopt it in consideration of the current Singapore industry practices.

Acknowledgement is made for the use of information from the above publications.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. SPRING Singapore shall not be held responsible for identifying any or all of such patent rights.

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.*

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75% approval by the member bodies voting.

International Standard ISO 7765-1 was prepared by Technical Committee ISO/TC 61, Plastics.

ISO 7765 consists of the following parts, under the general title Plastics film and sheeting – Determination of impact resistance by the free-falling dart method:

- Part 1: Staircase methods
- Part 2: Instrumented puncture test

Methods of test for flexible plastic packaging materials – Part C2 : Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Staircase methods

1 Scope

1.1 This part of ISO 7765 specifies methods for the determination of the energy that causes plastics film and sheet less than 1 mm in thickness to fail under specified conditions of impact of a free-falling dart from a specified height that would result in failure of 50% of the specimens tested.

1.2 Two methods of test are described

1.2.1 Method A employs a dart with a $38 \text{ mm} \pm 1 \text{ mm}$ diameter hemispherical head dropped from a height of $0,66 \text{ m} \pm 0,01 \text{ m}$. This method may be used for materials whose impact resistance required masses of about 0,05 kg to about 2 kg to fracture them.

1.2.2 Method B employs a dart with a $50 \text{ mm} \pm 1 \text{ mm}$ diameter hemispherical head dropped from a height of $1,50 \text{ m} \pm 0,01 \text{ m}$. Its range of applicability is from about 0,3 kg to about 2 kg.

1.3 The measurement technique is the staircase method. A uniform missile mass increment is employed during testing and the missile weight is decreased or increased by the uniform increment after test of each specimen, depending upon the result (failure or no failure) observed for the specimen.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 7765. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 7765 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

ISO 4591 : 1979, Plastics – Film and sheeting – Determination of average thickness of a sample and average thickness and yield of a roll, by gravimetric techniques (gravimetric thickness).

ISO 4593 : 1979, Plastics – Film and sheeting – Determination of thickness by mechanical scanning.