STANDARD 7765-2

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Plastics film and sheeting — Determination of impact resistance by the free-falling dart method —

Part 2:
Instrumented puncture test

Film et feuille de plastiques — Détermination de la résistance au choc par la méthode par chute libre de projectile —

Partie 2: Essai avec appareil de perforation

Reference number
ISO 7765-2:1994(E)

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 voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 7765-2 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 2, *Mechanical properties*.

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*

Annexes A and B of this part of ISO 7765 are for information only.

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Plastics film and sheeting — Determination of impact resistance by the free-falling dart method —

Part 2:
Instrumented puncture test

1 Scope

1.1 The impact-penetration test described in the two parts of this International Standard is used for the assessment of plastic films and thin sheets (hereinafter referred to as films) under an impact stress applied at right angles to the plane of the film.

1.2 Part 1 of this International Standard can be used if it is sufficient to characterize the impact behaviour of the film by an impact-failure energy. Part 2 is used if a force-deformation or a force-time diagram, recorded at practically constant velocity of the striker, is necessary for characterization of the impact behaviour. This applies if:

— measured quantities derivable only from this diagram are required or

— only a small number of test specimens are available.

1.3 The test method is applicable to films of up to 1 mm thickness and makes it possible to compare impact-penetration forces, biaxial deformabilities and energy-absorption capacities of films. Furthermore, if required, the transition region between brittle and tough behaviour of the film under the conditions of testing can be determined by varying the temperature or the penetration velocity or the relative humidity (see also annex B).

NOTE 1 For thicknesses greater than 1 mm, ISO 6603-2 should be used.

1.4 The test results are comparable only if the conditions for preparation of specimens, their thickness and surfaces, and the test conditions are identical. Comprehensive evaluation of the reaction to impact stress requires that the determinations are made as functions of deformation rate and temperature for different material variables, such as crystallinity and moisture content.

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 indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

ISO 4593:1993, *Plastics — Film and sheeting — Determination of thickness by mechanical scanning.*

ISO 6603-2:1989, *Plastics — Determination of multiaxial impact behaviour of rigid plastics — Part 2: Instrumented puncture test.*

ISO 7765-1:1988, *Plastics film and sheeting — Determination of impact resistance by the free-falling dart method — Part 1: Staircase methods.*