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STANDARD

10066

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**Flexible cellular polymeric materials —
Determination of creep in compression**

*Matériaux polymères alvéolaires souples — Détermination du fluage en
compression*



Reference number
ISO 10066:1991(E)

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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.

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 10066 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*.

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Flexible cellular polymeric materials — Determination of creep in compression

1 Scope

This International Standard describes the procedure for determining the creep of a flexible cellular polymeric material when compressed by a static force, intended primarily for quality assurance in packaging applications.

NOTE 1 The test may also be used to obtain design data. For example, a material that shows excessive creep is not likely to be selected for the manufacture of cushions to support packaged items because of the possibility of slippage during storage. The amount of creep and safe static stress that can be allowed depends on cushion thickness, package life and storage conditions.

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 1923:1981, *Cellular plastics and rubbers — Determination of linear dimensions*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 percentage creep strain: The change in compressive strain after 72 h exhibited by a test piece under the specified static stress as determined by measurements 15 min and 72 h after applying the stress.

3.2 compression stress: The static force per unit area of the original cross-section of the test piece.

3.3 percentage compression after recovery: The percentage loss in test piece thickness after 72 h under static stress followed by a 30 min recovery period.

4 Principle

The change in deformation under a static stress with time is measured.

5 Apparatus

The apparatus shall consist of two flat, smooth, but not polished, plates, at least one of which shall be self-aligning, so arranged that they compress the test piece evenly in the vertical direction. The plates shall be capable of being loaded so that during the period of test the static stress does not change by more than $\pm 1\%$, and the separation of the plates shall be capable of being measured to within 0,1 mm. The compression stress required varies with the material, but is usually less than 10 kPa. The apparatus shall be placed on a substantial support to minimize the effects of vibration.

6 Test piece

6.1 The test piece shall be a right parallelepiped with the following dimensions:

length: 50 mm \pm 1 mm

width: 50 mm \pm 1 mm

mean thickness: within the range 20 mm to 30 mm

The thickness of the test piece shall be subject to a tolerance of ± 1 mm about the selected mean value.

The dimensions shall be measured in accordance with ISO 1923.