

International Standard



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Cellular plastics, rigid — Determination of compressive creep under specified load and temperature conditions

Plastiques alvéolaires rigides — Détermination du fluage sous compression dans des conditions spécifiées de charge et de température

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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.

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 7616 was prepared by Technical Committee ISO/TC 61, *Plastics*.

It cancels and replaces Technical Report ISO/TR 2799-1978, of which it constitutes a technical revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Cellular plastics, rigid — Determination of compressive creep under specified load and temperature conditions

1 Scope and field of application

This International Standard specifies a method for the determination of compressive creep of rigid cellular plastics under specified load and temperature conditions. This method is for use in measuring the creep resistance of materials to be used in the thermal insulation of buildings (see ISO 4898).

2 References

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

ISO 1923, *Rigid cellular plastics and rubbers — Determination of linear dimensions*.

ISO 4898, *Rigid cellular plastics — Specification for materials used in the thermal insulation for buildings*.

ISO 7850, *Cellular plastics, rigid — Determination of compressive creep*.

3 Principle

Determination of compressive creep under specified conditions of load, temperature and time.

4 Apparatus

4.1 Dial-gauge micrometer, as specified in ISO 1923.

4.2 Test chamber, capable of being maintained within ± 2 °C of the required temperatures.

4.3 Loading device, consisting of two flat plates, at least one of which shall be movable, so arranged that they compress the test specimen in a vertical direction. The movable plate shall be guided in such a manner as to be self-aligning and with its lateral movement restricted to less than 1 mm. The plates shall be capable of being loaded as required without bending and so that during the period of test the static stress does not change by more than ± 5 %. The distance between the plates shall be capable of being measured to within 0,1 mm. The apparatus shall be placed on a substantial support to minimize the effects of vibration.

5 Test specimen

5.1 Specimens

The test specimens shall be, as nearly as possible, rectangular parallelepipeds with a square base of 50 ± 1 mm. A thickness of 50 ± 1 mm is recommended, but it shall be not less than 20 mm. If the sample thickness is greater than 50 mm, the test specimen shall be a cube with all dimensions equal to the thickness. The distance between any two opposite faces shall not vary by more than 1 % (tolerance on parallelism).

NOTE — Test results on test specimens of different thickness may not be comparable.

5.2 Preparation

Specimens shall be cut from the sample so that the direction of test corresponds to the direction in which the compressive forces will be applied in the intended use. If this direction is unknown, then two sets of specimens shall be tested in the two principal directions of anisotropy.

Specimens shall be prepared by cutting with either a mechanical saw or a knife. A jig shall be used to assure the rectangularity of the specimens and the parallelism of the faces.

Material skins that form an integral part of the product in use shall be retained.

5.3 Number

At least three specimens shall be tested at each temperature and applied load.

5.4 Conditioning

The test specimens shall be conditioned in the standard conditioning atmosphere specified in ISO 291 of 23 ± 2 °C and (50 ± 5) % relative humidity for at least 16 h prior to testing.

6 Procedure

6.1 Immediately after conditioning, determine the dimensions of each specimen, including the thickness (d_1), to the nearest 0,1 mm, using the dial-gauge micrometer (4.1). Determine each dimension by making measurements in several locations and calculating the average of the values.