

Revised

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**ISO RECOMMENDATION
R 75**

PLASTICS

**DETERMINATION OF
TEMPERATURE OF DEFLECTION UNDER LOAD**

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 75, *Plastics - Determination of Temperature of Deflection under Load*, was prepared by Technical Committee ISO/TC 61, *Plastics*, the Secretariat of which is held by the American Standards Association, Incorporated (ASA).

Development of this test method was undertaken at the first meeting of the Technical Committee, held in New York, in September 1951, a digest of U.S.A. information on the subject having been circulated prior to that meeting. The study was assigned to Working Group No. 4, *Thermal Properties*.

The draft formulated by the Working Group was presented to the Technical Committee at its third plenary meeting, held in Stockholm, in August 1953, and then distributed to the members of the Technical Committee as a draft proposal for an ISO Recommendation.

After its reconsideration at the fourth meeting of ISO/TC 61, held in Brighton, in October 1954, the draft proposal was adopted as a Draft ISO Recommendation.

On 31 December 1955, the Draft ISO Recommendation was circulated to all the ISO Member Bodies and, some amendments having been taken into consideration, it was approved by the following 27 Member Bodies (out of a total of 37):

Australia	India	Portugal
Austria	Ireland	Spain
Bulgaria	Israel	Sweden
Chile	Italy	Turkey
Czechoslovakia	Japan	Union of South Africa
*Denmark	Mexico	United Kingdom
Finland	Netherlands	U.S.A.
France	Pakistan	U.S.S.R.
*Greece	Poland	Yugoslavia

No Member Body opposed approval of the Draft.

The Draft ISO Recommendation was then submitted, by correspondence, to the ISO Council, which decided, in December 1958, to accept it as an ISO RECOMMENDATION.

* These Member Bodies stated that they had no objection to the Draft being approved.

PLASTICS

DETERMINATION OF TEMPERATURE OF DEFLECTION UNDER LOAD

1. SCOPE

- 1.1 This method of test is suitable for plastics materials which are rigid at a room temperature of 20 to 23 °C.
- 1.2 This method of test covers a procedure for determining the temperature at which an arbitrary deformation occurs when the test specimens are subjected to arbitrary bending loads, under conditions of continually rising temperatures. Data obtained by this method may be used to predict the behaviour of plastics materials at elevated temperatures only in applications in which the factors of time, temperature, method of loading and fibre stress are similar to those specified in this ISO Recommendation. This test method is suited to the determination of, and the control of, the quality of plastics materials. The results obtained do not represent maximum use temperatures because of the variables referred to above.
- 1.3 This method applies to moulded materials in thicknesses between 3.0 and 4.2 mm and to materials in sheet form in thicknesses ranging from 3 to 13 mm.

2. APPARATUS

- 2.1 The apparatus used is constructed essentially as shown in the figure (page 4) and should conform to the description given below.
- 2.2 **Specimen supports.** The specimen rests horizontally on metal supports which are $100 \text{ mm} \pm 2.0 \text{ mm}$ apart, with the load applied on top of the specimen, vertically and midway between the supports, by means of a rod. The contact edges of the supports and of the rod by which pressure is applied are rounded to a radius of $3.0 \text{ mm} \pm 0.2 \text{ mm}$. The vertical members which attach the specimen supports to the upper plate are made of material having the same coefficient of linear expansion as is used for the rod (see Note 1).

Note 1. Unless these parts have the same coefficient of linear expansion, the differential change in length of these parts introduces an error in the reading of the apparent deformation of the specimen. A blank test is made on each apparatus using a test bar made of rigid material having a low coefficient of expansion.* The temperature ranges to be used should be covered and a correction factor determined for each temperature. If the correction factor is 0.010 mm or greater, its algebraic sign is noted and the factor is applied to each test by adding it algebraically to the reading of apparent deflection of the test specimens.

* Invar or borosilicate glass has been found suitable for this purpose.