

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 178

PLASTICS

DETERMINATION OF FLEXURAL PROPERTIES OF RIGID PLASTICS

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BRIEF HISTORY

The ISO Recommendation R 178, *Determination of Flexural Properties of Rigid Plastics*, was drawn up by Technical Committee ISO/TC 61, *Plastics*, the Secretariat of which is held by the American Standards Association (ASA).

Work on this matter which the Technical Committee had begun since 1951, came to an end in 1956, with the adoption of a proposal as a Draft ISO Recommendation.

On 28 November 1958, the Draft ISO Recommendation (No. 193) was distributed to all the ISO Member Bodies and was approved, subject to some editorial amendments, by the following Member Bodies:

Australia	Hungary	Romania
Austria	India	Spain
Belgium	Israel	Sweden
Bulgaria	Italy	Switzerland
Burma	Japan	Turkey
Czechoslovakia	Netherlands	U.S.A.
France	Poland	U.S.S.R.
Germany	Portugal	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in February 1961, to accept it as an ISO RECOMMENDATION.

PLASTICS

DETERMINATION OF FLEXURAL PROPERTIES OF RIGID PLASTICS

1. SCOPE

This method covers the determination of the following flexural properties in order to get a measure of the resistance in flexure of test specimens having standard dimensions and of test specimens having other than standard dimensions.

- 1.1 The flexural stress (in kilogrammes-force per square centimetre) and the deflection at break of materials that break before or at a definite deflection.
- 1.2 The flexural stress (in kilogrammes-force per square centimetre) at a definite deflection of materials that do not break before or at a definite deflection.
- 1.3 The flexural stress (in kilogrammes-force per square centimetre) at maximum load.
- 1.4 Optional: the modulus of elasticity in flexure.*

2. DEFINITIONS

- 2.1 *Deflection* is the distance over which the loaded surface of the test specimen has deviated during flexure from its position in the original plane of this surface.
- 2.2 *Flexural stress* (kgf/cm^2) at a given moment of the test is the maximum fibre stress of the material in the section of the test specimen directly under the load. It is calculated according to the relationship given in section 9.
- 2.3 *Flexural stress* (kgf/cm^2) *at conventional deflection* is the flexural stress at a deflection conventionally fixed at 1.5 times the height of the test specimen.
- 2.4 *Flexural stress* (kfg/cm^2) *at maximum load* and *flexural stress at rupture* are, respectively, that at the moment when the load reaches a maximum value and that at the moment of rupture.
- 2.5 *Rigid plastics* are plastics that show a modulus of elasticity in shear which in any direction is larger than $5 \times 10^8 \text{ kgf/cm}^2$.

* The modulus of elasticity in flexure is to be considered only as an approximate value of Young's modulus of elasticity.