Indian Standard

PLASTICS — METHODS OF TESTING

PART 6 THERMAL PROPERTIES

Section 3 Determination of Temperature of Deflection Under Load — General Test Method

(First Revision)

1 Scope

1.1 ISO 75 specifies methods for the determination of the temperature of deflection under load (flexural stress under three-point loading) of plastics. Different types of test specimen and different constant loads are defined to suit different types of material.

1.2 This part of ISO 75 gives a general test method, part 2 gives specific requirements for plastics (including filled plastics and fibre-reinforced plastics in which the fibre length, prior to processing, is up to 7,5 mm) and ebonite while part 3 gives specific requirements for high-strength thermosetting laminates and long-fibre-reinforced plastics in which the fibre length is greater than 7,5 mm.

1.3 The methods specified are suitable for assessing the relative behaviour of different types of material at elevated temperature under load at a specified rate of temperature increase. The results obtained do not necessarily represent maximum applicable temperatures, because in practice essential factors such as time, loading conditions and nominal surface stress may differ from the test conditions. True comparability of data can only be achieved for materials having the same room-temperature flexural modulus.

1.4 The methods specify preferred dimensions for the test specimens. Tests which are carried out on specimens of different dimensions, or on specimens which are prepared under different conditions, may produce different results. Consequently, when repeatable data are required, sample preparation conditions and test variables should be carefully controlled and recorded.

1.5 Data obtained using the test methods described may not be used to predict actual end-use performance. The data are not intended for design analysis or predicting the endurance of materials at elevated temperatures.

1.6 For part 2, two test specimen positions are allowed. However, the flatwise position is the preferred and recommended one, while testing in the edgewise position is described as optional only. It is intended to remove this specimen position altogether on occasion of the next revision of this standard. Part 3 only allows flatwise testing.

1.7 This method is commonly known as the HDT test (heat deflection test or heat distortion test), although there is no official document using this designation.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 75-2:2004, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite*

ISO 75-3:2004, *Plastics — Determination of temperature of deflection under load — Part 3: High-strength thermosetting laminates and long-fibre-reinforced plastics*

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