
International Standard



899

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Plastics — Determination of tensile creep

Plastiques — Détermination du fluage en traction

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

International Standard ISO 899 was developed by Technical Committee ISO/TC 61, *Plastics*.

It was submitted directly to the ISO Council, in accordance with clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces ISO Recommendation R 899-1968, which had been approved by the member bodies of the following countries :

Australia	Hungary	Romania
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Canada	Israel	Sweden
Chile	Italy	Switzerland
Czechoslovakia	Japan	Thailand
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The member body of the following country had expressed disapproval of the document on technical grounds :

United Kingdom

Plastics — Determination of tensile creep

1 Scope and field of application

This International Standard specifies a method for the determination of tensile creep of rigid plastic materials in the form of test specimens such as are employed for the determination of tensile properties, moulded directly or cut from sheets.

Data from this method can be used

- to compare materials;
- in the design of fabricated parts;
- to characterize plastics for long-term performance under constant load;
- under certain conditions, for specification purposes.

2 References

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

ISO 527, *Plastics — Determination of tensile properties*.¹⁾

3 Definitions

For the purpose of this International Standard the following definitions apply.

3.1 creep : The time-dependent strain resulting from stress.

For the purpose of obtaining significant measurements by this method, tensile creep of plastics is determined at constant load, constant temperature and constant relative humidity (see ISO 291).

3.2 strain : The relative elongation. It is given by the equation

$$\varepsilon = \frac{\Delta l}{l_0}$$

where

$$\Delta l = l - l_0;$$

l is the gauge length at any given time during the test;

l_0 is the original gauge length of the unstressed specimen (prior to the application of load under the environmental conditions of the test).

The strain may be expressed as a percentage using the equation

$$\varepsilon = \frac{\Delta l}{l_0} \times 100$$

3.3 initial applied stress : The force divided by the area of the original specimen cross-section. It is given by the equation

$$\sigma = \frac{F}{A_0}$$

where

F is the load;

A_0 is the original cross-sectional area of the specimen.

The stress shall be expressed in megapascals²⁾.

3.4 recovery : The decrease of strain at any given time after full unloading of the specimen, defined as a percentage decrease of the strain at the instant of removal of stress.

1) At present at the stage of draft. (Revision of ISO/R 527-1966.)

2) 1 MPa = 1 N/mm²