INTERNATIONAL STANDARD

ISO 527-1

Second edition
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Plastics — Determination of tensile properties —

Part 1: General principles

Plastiques — Détermination des propriétés en traction —

Partie 1: Principes généraux

Reference number
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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 527-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 2, *Mechanical properties*.

This second edition cancels and replaces the first edition (ISO 527-1:1993), which has been technically revised. It incorporates ISO 527-1:1993/Cor 1:1994 and ISO 527-1:1993/Amd 1:2005. The main changes are as follows.

— A method for the determination of Poisson's ratio has been introduced. It is similar to the one used in ASTM D638, but in order to overcome difficulties with precision of the determination of the lateral contraction at small values of the longitudinal strain, the strain interval is extended far beyond the strain region for the modulus determination.

— Definitions and methods have been optimized for computer controlled tensile test machines.

— The preferred gauge length for use on the multipurpose test specimen has been increased from 50 mm to 75 mm. This is used especially in ISO 527-2.

— Nominal strain and especially nominal strain at break will be determined relative to the gripping distance. Nominal strain in general will be calculated as crosshead displacement from the beginning of the test, relative to the gripping distance, or as the preferred method if multipurpose test specimens are used, where strains up to the yield point are determined using an extensometer, as the sum of yield strain and nominal strain increment after the yield point, the latter also relative to the gripping distance.

ISO 527 consists of the following parts, under the general title *Plastics — Determination of tensile properties*:

— *Part 1: General principles*

— *Part 2 :Test conditions for moulding and extrusion plastics*

— *Part 3: Test conditions for films and sheets*

— *Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites*

— *Part 5: Test conditions for unidirectional fibre-reinforced plastic composites*