AS 1145.5—2001
ISO 527-5:1997

Australian Standard™

Determination of tensile properties of plastics materials

Part 5: Test conditions for fibre-reinforced plastic composites

[ISO title: Plastics—Determination of tensile properties, Part 5: Test conditions for unidirectional fibre-reinforced plastic composites]

Standards Australia

This Australian Standard was prepared by Committee PL-010, Methods of Testing Plastics. It was approved on behalf of the Council of Standards Australia on 27 October 2000 and published on 27 February 2001.

The following interests are represented on Committee PL-010:

CSIRO Building, Construction and Engineering

Plastics and Chemicals Industries Association

Royal Australian Chemical Institute

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This Standard was issued in draft form for comment as DR 00061.

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First published as AS 1145.5—2001.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 3675 0

PREFACE

This Standard was prepared by the Standards Australia Committee PL-010, Methods of Testing Plastics.

This Standard is identical to and is reproduced from ISO 527-5:1997, *Plastics—Determination of tensile properties*, Part 5: *Test conditions for fibre-reinforced plastic composites.*

The objective of this Standard is to provide testing agencies with a means of establishing conditions for testing of fibre-reinforced plastics.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text ‘this International Standard’ should read ‘this Australian Standard’.

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(d) References to International Standards should be replaced by references to equivalent Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian or Australian/New Zealand Standard*	
ISO/IEC		AS/NZS	
527	Plastics—Determination of tensile properties	1145	Determination of tensile properties of plastics materials
527-1	Part 1: General principles	1145.1	Part 1: General principals
527-2	Part 2: Test conditions for moulding and extrusion plastics	1145.2	Part 2: Test conditions for moulding and extrusion plastics
527-4	Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites	1145.4	Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites
1268	Plastics—Preparation of glass fibre reinforced, resin bonded, low-pressure laminated plates or panels for test purposes		—
2818	Plastics—Preparation of test specimens by machining		—
3534-1	Statistics—Vocabulary and symbols—Part 1: Probability and general statistical terms		—
9291	Textile-glass-reinforced plastics—Rovings—Preparation of unidirectional panels by winding.		—

AUSTRALIAN STANDARD

Determination of tensile properties of plastics materials—

Part 5:
Test conditions for fibre-reinforced plastic composites

1 Scope

1.1 This part of ISO 527 specifies the test conditions for the determination of the tensile properties of unidirectional fibre-reinforced plastic composites, based upon the general principles given in part 1.

1.2 See ISO 527-1, subclause 1.2.

1.3 The test method is suitable for all polymer matrix systems reinforced with unidirectional fibres and which meet the requirements, including failure mode, set out in this part of ISO 527.

The method is suitable for composites with either thermoplastic or thermosetting matrices, including preimpregnated materials (prepregs). The reinforcements covered include carbon fibres, glass fibres, aramid fibres and other similar fibres. The reinforcement geometries covered include unidirectional (i.e. completely aligned) fibres and rovings and unidirectional fabrics and tapes.

The method is not normally suitable for multidirectional materials composed of several unidirectional layers at different angles (see ISO 527-4).

1.4 The method is performed using one of two different types of test specimen, depending on the direction of the applied stress relative to the fibre direction (see clause 6).

1.5 See ISO 527-1, subclause 1.5.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 527. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 527 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 527-1:1993, *Plastics — Determination of tensile properties — Part 1: General principles.*

ISO 527-4:1997, *Plastics — Determination of tensile properties — Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites.*