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Fibre-reinforced plastic composites — Determination of the in-plane shear stress/ shear strain response, including the in-plane shear modulus and strength, by the ± 45° tension test method

Composites plastiques renforcés de fibres — Détermination de la réponse contrainte-déformation en cisaillement plan, module et résistance compris, par essai de traction à ± 45°

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.

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.

International Standard ISO 14129 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*.

Annex A forms an integral part of this International Standard.

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Introduction

This International Standard covers all current and future fibre-reinforced plastic composites which fail in the required manner. Harmonisation with the new tensile standard, ISO 527-5:1997, *Plastics — Determination of tensile properties — Part 5: Test conditions for unidirectional fibre-reinforced plastic composites,* has been achieved where relevant (e.g. document format, specimen size and related strains for modulus measurement).

The test is acceptable for modulus but there is concern over its use for the ultimate shear strength for high shear-elongation materials due to the high strain at failure with only a small further increase in load, fibre rotation and associated temperature rise. Therefore, the stress at a maximum shear strain of 5 % or less is used as the failure criterion. This failure criterion is also used in ASTM D 3518 (1995).