IEC 60454-3-11

Edition 2.0 2007-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Pressure-sensitive adhesive tapes for electrical purposes – Part 3: Specifications for individual materials – Sheet 11: Polyester film combinations with glass filament, creped cellulosic paper, polyester non-woven, epoxy and pressure-sensitive adhesive

Rubans adhésifs sensibles à la pression à usages électriques – Partie 3: Spécifications pour matériaux particuliers – Feuille 11: Combinaisons de film polyester avec filament de verre, papier cellulosique crêpé, polyester non tissé, époxy et adhésif sensible à la pression

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRESSURE-SENSITIVE ADHESIVE TAPES FOR ELECTRICAL PURPOSES –

Part 3: Specifications for individual materials – Sheet 11: Polyester film combinations with glass filament, creped cellulosic paper, polyester non-woven, epoxy and pressure-sensitive adhesive

FOREWORD

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International Standard IEC 60454-3-11 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This second edition of IEC 60454-3-11 replaces the first edition, published in 1998, as well as replacing IEC 60454-3-15 (2001), IEC 60454-3-16 (2003) and IEC 60454-3-17 (2001). It constitutes a technical revision.

IEC 60454-3-15, IEC60454-3-16 and IEC 60454-3-17 are to be withdrawn at the time of this publication.

The main changes with regard to the previous edition is the consolidation of Parts 3-11, 3-15, 3-16 and 3-17.

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This bilingual version (2012-09) corresponds to the monolingual English version, published in 2007-05.

The text of this standard is based on the following documents:

FDIS	Report on voting
15/374/FDIS	15/383/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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INTRODUCTION

This International Standard is one of a series which deals with pressure-sensitive adhesive tapes, intended primarily for electrical purposes.

The series consists of three parts:

– Part 1: General requirements (IEC 60454-1);
– Part 2: Methods of test (IEC 60454-2);
– Part 3: Specifications for individual materials (IEC 60454-3).

This standard contains one of the sheets comprising Part 3 as follows:

Sheet 11: Polyester film combinations with glass filament, creped cellulosic paper, polyester non-woven, epoxy and pressure-sensitive adhesive.

SAFETY WARNING

It is the responsibility of the user of the methods contained or referred to in this standard to ensure that they are used in a safe manner.

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PRESSURE-SENSITIVE ADHESIVE TAPES FOR ELECTRICAL PURPOSES –

Part 3: Specifications for individual materials – Sheet 11: Polyester film combinations with glass filament, creped cellulosic paper, polyester non-woven, epoxy and pressure-sensitive adhesive

1 Scope

This sheet of IEC 60454-3 contains the requirements for pressure-sensitive adhesive tapes, made with combined backings based on polyester film:

- PET film/glass filament combination tapes;
- Creped cellulosic paper/PET film combination tapes;
- PET film/polyester non-woven combination tapes;
- PET film/epoxy combination tapes.

Materials which conform to this specification meet established levels of performance. However, the selection of a material by a user for a specific application should be based on the actual requirements necessary for adequate performance in that application, and not based on this specification alone.

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.

IEC 60426:1973, *Test methods for determining electrolytic corrosion with insulating materials.*

IEC 60454-1:1992, *Specifications for pressure-sensitive adhesive tapes for electrical purposes – Part 1: General requirements.*

IEC 60454-2, *Specification for pressure-sensitive adhesive tapes for electrical purposes – Part 2: Methods of test*[1]

IEC 60674-3-2:1992, *Specification for plastic films for electrical purposes – Part 3: Specifications for individual materials – Sheet 2: Requirements for balanced biaxially oriented polyethylene terephthalate (PET) films used for electrical insulation*

3 Terms and definitions

For the purposes of this document, refer to the definitions applicable to these materials in IEC 60454-1.

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1 A third edition of IEC 60454-2 is due to be published which will replace the current second edition dated 1988.

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4 Classification and designation

The products supplied according to this standard shall be classified as follows:

4.1 Polyester film/glass filament combinations with pressure-sensitive adhesive

Type 1: Products having properties characteristic of polyester film/glass filament combinations with a temperature index of 130 with a rubber thermosetting adhesive, of nominal tape thickness (0,13 – 0,19) mm and a breaking strength of 280 N/10 mm minimum.

Type 2: Products having properties characteristic of polyester film/glass filament combinations with a temperature index of 130 with a rubber thermosetting adhesive, of nominal tape thickness (0,18 – 0,25) mm and a breaking strength of 450 N/10 mm minimum.

Type 3: Products having properties characteristic of polyester film/glass filament combinations with a temperature index of 130 with an acrylic crosslinked adhesive, of nominal tape thickness (0,13 – 0,19) mm and a breaking strength of 280 N/10 mm minimum.

Type 4: Products having properties characteristic of polyester film/glass filament combinations with a temperature index of 130 with an acrylic crosslinked adhesive, of nominal tape thickness (0,18 – 0,25) mm and a breaking strength of 450 N/10 mm minimum.

Type 5: Products having properties characteristic of polyester film/glass filament combinations with a temperature index of 130 with an acrylic thermoplastic adhesive, of nominal tape thickness (0,13 – 0,19) mm and a breaking strength of 280 N/10 mm minimum.

Type 6: Products having properties characteristic of polyester film/glass filament combinations with a temperature index of 130 with an acrylic thermoplastic adhesive, of nominal tape thickness (0,18 – 0,25) mm and a breaking strength of 450 N/10 mm minimum.

The products shall be designated for ordering purposes as follows:

Type 1: IEC 60454-3-11-1/M/F-PET/G/130/R-Tc

Type 2: IEC 60454-3-11-2/M/F-PET/G/130/R-Tc

Type 3: IEC 60454-3-11-3/M/F-PET/G/130/A-Tx

Type 4: IEC 60454-3-11-4/M/F-PET/G/130/A-Tx

Type 5: IEC 60454-3-11-5/M/F-PET/G/130/A-Tp

Type 6: IEC 60454-3-11-6/M/F-PET/G/130/A-Tp

4.2 Creped cellulosic paper/polyester film combinations with thermosetting adhesive

Type 1: Products having properties characteristic of a cellulosic paper/polyester film combination with a temperature index of 120 with a rubber thermosetting adhesive.

The products shall be designated for ordering purposes as follows:

Type 1: EC 60454-3-11-1/M/P-Cc/F-PET/120/R-Tc.

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4.3 Polyester film/polyester non-woven combinations with rubber thermosetting adhesive

Type 1: Products having properties characteristic of a polyester film/polyester non-woven combination with a temperature index of 130 with a rubber thermosetting adhesive, of nominal tape thickness 0,090 mm to 0,150 mm.

Type 2: Products having properties characteristic of a polyester film/polyester non-woven combination with a temperature index of 130 with a rubber thermosetting adhesive, of nominal tape thickness 0,151 mm to 0,250 mm.

Type 3: Products having properties characteristic of a polyester film/polyester non-woven combination with a temperature index of 130 with a rubber thermosetting adhesive, of nominal tape thickness 0,251 mm to 0,500 mm.

The products shall be designated for ordering purposes as follows:

Type 1: IEC 60454-3-11-1/M/F-PET/P-PET/130/R-Tc

Type 2: IEC 60454-3-11-2/M/F-PET/P-PET/130/R-Tc

Type 3: IEC 60454-3-11-3/M/F-PET/P-PET/130/R-Tc

4.4 Polyester/epoxy combinations with pressure-sensitive adhesive

Type 1: Products having properties characteristic of polyester with an epoxy coating with a temperature index of 130 with a rubber thermosetting adhesive, of nominal tape thickness 0,12 mm to 0,16 mm.

Type 2: Products having properties characteristic of polyester with an epoxy coating with a temperature index of 130 with an acrylic cross-linked adhesive, of nominal tape thickness 0,12 mm to 0,16 mm.

Type 3: Products having properties characteristic of polyester with an epoxy coating with a temperature index of 130 with an acrylic cross-linked adhesive, of nominal tape thickness 0,07 mm to 0,11 mm.

The products shall be designated for ordering purposes as follows:

Type 1: IEC 60454-3-11-1/M/EP/PET/130/R-Tc

Type 2: IEC 60454-3-11-2/M/EP/PET/130/A-Tx

Type 3: IEC 60454-3-11-3/M/EP/PET/130/A-Tx

5 Requirements

5.1 All applicable requirements of IEC 60454-1 shall apply to material furnished under this specification.

The PET film used for the polyester film tapes shall be in accordance with IEC 60674-3-2.

5.2 The electrical and other physical properties of products supplied according to this specification shall be within the limits listed in the relevant tables when tested in accordance with the test methods listed therein.

5.3 Thermal endurance

5.3.1 Polyester film/glass filament combinations with pressure-sensitive adhesive

When required by the purchaser, the manufacturer shall provide evidence that the product has a temperature index of not less than 130 when tested in accordance with Clause 21 of IEC 60454-2. The exposure temperatures shall be 150 °C, 160 °C and 180 °C.

The end-point criterion used shall be as follows: the breakdown voltage shall be 2,2 kV for types 1, 2, 3 and 5; and 3,5 kV for types 4 and 6 (metal foil electrode).

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