
Pressure-sensitive adhesive tapes for electrical purposes - Part 3: Specifications for individual materials - Sheet 7: Polyamide film tapes with pressure-sensitive adhesive (IEC 60454-3-7:1998)

Pressure-sensitive adhesive tapes for electrical purposes -- Part 3: Specifications for individual materials -- Sheet 7: Polyimide film tapes with pressure-sensitive adhesive

Selbstklebende Bänder für elektrotechnische Anwendungen -- Teil 3: Bestimmungen für einzelne Materialien -- Blatt 7: Selbstklebende Bänder aus Polyimid-Folie

Rubans adhésifs sensibles à la pression à usages électriques -- Partie 3: Spécifications pour matériaux particuliers -- Feuille 7: Rubans en polyimide avec un adhésif sensible à la pression

Ta slovenski standard je istoveten z: EN 60454-3-7:1998

ICS:

29.035.20 Účelom je definovať špecifikácie pre plastické a gumové izolujúce materiály
 { 29.035.20 Plastics and rubber insulating materials

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EUROPEAN STANDARD
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Descriptors: Electrical insulation, solid electrical insulating materials, adhesive tapes, carbonates, thermoplastic resins, acrylic fibres, specifications

English version

Pressure-sensitive adhesive tapes for electrical purposes
Part 3: Specifications for individual materials
Sheet 7: Polyimide film tapes with pressure-sensitive
adhesive

(IEC 60454-3-7:1998)

Rubans adhésifs sensibles à la pression
à usages électriques
Partie 3: Spécifications pour matériaux
particuliers
Feuille 7: Rubans en polyimide avec un
adhésif sensible à la pression
(CEI 60454-3-7:1998)

Selbstklebende Bänder für
elektrotechnische Anwendungen
Teil 3: Bestimmungen für einzelne Materialien
Blatt 7: Anforderungen für selbstklebende
Bänder aus Polyimid-Folien
(IEC 60454-3-7:1998)

This European Standard was approved by CENELEC on 1998-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 15C/857/FDIS, future edition 2 of IEC 60454-3-7, prepared by SC 15C, Specifications, of IEC TC 15, Insulating materials, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60454-3-7 on 1998-04-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-01-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-01-01

Annexes designated “normative” are part of the body of the standard.

In this standard, Annex ZA is normative.

Annex ZA has been added by CENELEC.

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Endorsement notice

SIST EN 60454-3-7:2002

The text of the International Standard IEC 60454-3-7:1998 was approved by CENELEC as a European Standard without any modification.

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 7: Polyimide film tapes with pressure-sensitive adhesive.

1 General

1.1 Scope

This sheet of IEC 60454-3 contains the requirements for pressure-sensitive adhesive tapes made with polyimide film.

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.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this sheet of IEC 60454-3. At the time of publication, the editions indicated were valid. All normative documents are subject to revision and parties to agreements based on this sheet of IEC 60454-3 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below¹⁾. Members of IEC and ISO maintain registers of currently valid International Standards.

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 60454-2:1994, *Specification for pressure-sensitive adhesive tapes for electrical purposes — Part 2: Methods of test*.

1.3 Definitions

Refer to IEC 60454-1 for definitions applicable to these materials.

2 Classification and designation

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

- Type 1: Products having properties characteristic of a polyimide film of nominal thickness 0,020 mm to 0,030 mm with a thermal index of 155 with an acrylic crosslinked adhesive.
- Type 2: Products having properties characteristic of a polyimide film of nominal thickness 0,020 mm to 0,030 mm with a thermal index of 180 with a silicone thermosetting adhesive.
- Type 3: Products having properties characteristic of a polyimide film of nominal thickness 0,045 mm to 0,055 mm with a thermal index of 155 with an acrylic crosslinked adhesive.
- Type 4: Products having properties characteristic of a polyimide film of nominal thickness 0,045 mm to 0,055 mm with a thermal index of 180 with a silicone thermosetting adhesive.

2.2 The products shall be designated for ordering purposes as follows:

- Type 1: IEC 454-3-7-1/F-PI/155/A-Tx.
- Type 2: IEC 454-3-7-2/F-PI/180/S-Tc.
- Type 3: IEC 454-3-7-3/F-PI/155/A-Tx.
- Type 4: IEC 454-3-7-4/F-PI/180/S-Tc.

3 Requirements

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

3.2 The physical and electrical properties of products supplied according to this specification shall be within the limits listed in Table 1 and Table 2 when tested in accordance with the test methods listed therein.

¹⁾ In case of dispute, the reference edition is applicable.

3.3 Thermal endurance

When required by the purchaser, the manufacturer shall provide evidence that when tested in accordance with clause 21 of IEC 60454-2, the product has a temperature index of not less than 155 for types 1 and 3, and 180 for types 2 and 4. The exposure temperatures are 170 °C, 190 °C, and 210 °C for types 1 and 3, and 200 °C, 225 °C, and 250 °C for types 2 and 4.

The end-point criterion used shall be:

for breakdown voltage: 1,5 kV for types 1 and 2, and 2,0 kV for types 3 and 4 (metal foil electrode).

4 Test methods

All tests shall be conducted in accordance with the appropriate clauses and subclauses of IEC 60454-2.

5 Marking, labelling and packaging

Unless otherwise specified, all marking, labelling and packaging shall be in accordance with the requirements of IEC 60454-1.

Table 1 — Requirements for all types

Properties	Clause or subclause of IEC 60454-2	Units	Requirements
Thickness	4	mm	Nominal value per manufacturer $\pm 0,01$ mm or ± 15 % whichever is greater
Width	5	mm	7.2.1 of IEC 60454-1
Length	6	m	7.3 of IEC 60454-1
Electrolytic corrosion: — insulation resistance after 24 h at (23 ± 2) °C and (93 ± 2) % relative humidity or — visual method	7.5 7.6	Ω/25 mm width None	1×10^{11} minimum Grade shall be at least as good as A 1,4 (see Table 1 of IEC 60426)
Elongation at break	8	%	40 minimum
Flagging test	15 Condition per 15.5.1	mm	2 maximum
Flame test	20		Flame retardant
Thermal endurance	21		See 3.3

Table 2 — Requirements for various types

Properties	Clause or subclause of IEC 60454-2	Units	Type 1	Type 2	Type 3	Type 4
Tensile strength	8	N/10 mm width	30 minimum	30 minimum	60 minimum	60 minimum
Adhesion to steel	11	N/10 mm width	2,0 minimum	2,0 minimum	2,5 minimum	2,5 minimum
Adhesion to backing	11	N/10 mm width	0,5 to 3,0	1,5 to 3,0	0,5 to 4,0	1,5 to 4,0
Bond separation during thermal treatment	14.1, except use (200 ± 5) g mass and test at 130 °C		3 passes	—	3 passes	—
Bond separation after thermal treatment	14.2		—	3 passes	—	3 passes
Breakdown voltage: — at room temperature	17	kV	4,5 minimum	4,5 minimum	7,0 minimum	7,0 minimum
— after humid conditioning	18	kV	3,2 minimum	3,2 minimum	5,0 minimum	5,0 minimum

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Annex ZA (normative)**Normative references to international publications with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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	EN 60454-1	1994
IEC 60454-2	1994	Part 2: Methods of test	EN 60454-2	1995

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