

ICS:

SLOVENSKI STANDARD oSIST prEN IEC 60674-3-4:2022

01-februar-2022

Plastične folije za električne namene - 3. del: Specifikacije za posamezne materiale - 4. list: Poliimidne folije, ki se uporabljajo za električno izolacijo

Plastic films for electrical purposes - Part 3: Specifications for individual materials - Sheets 4: Polyimide films used for electrical insulation

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Films plastiques à usages électriques - Partie 3: Spécifications pour matériaux particuliers - Feuille 4: Films de polyimide utilisés dans l'isolation électrique

Ta slovenski standard	ie istoveten zen IE	prEN IEC 60674-3-4:2021

https://standards.iteh.ai/catalog/standards/sist/1b908755-

d71f-492a-ad29-dea365e5b415/osist-pren-iec-60674-3-

4-2022

29.035.20	Plastični in gumeni izolacijski materiali	Plastics and rubber insulating materials
83.140.10	Filmi in folije	Films and sheets

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en

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15/956/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:	
IEC 60674-3-4 ED2	
DATE OF CIRCULATION:	CLOSING DATE FOR VOTING:
2021-12-17	2022-03-11
SUPERSEDES DOCUMENTS:	
15/922/CD, 15/930A/CC	

IEC TC 15 : Solid electrical insulating materials		
SECRETARIAT:	SECRETARY:	
United States of America	Mr John Gauthier	
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD:	
TC 112		
	Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.	
FUNCTIONS CONCERNED: ITCH STA	NDARD	
	QUALITY ASSURANCE SAFETY	
SUBMITTED FOR CENELEC PARALLEL VOTING	NOT SUBMITTED FOR CENELEC PARALLEL VOTING	
	ls.iteh.ai)	
The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft- for Vote (CDV) is submitted for parallel voting h.ai/catal	<u>60674-3-4:2022</u> g/standards/sist/1b908755-	
The CENELEC members are invited to vote through the CENELEC online voting system.	415/osist-pren-iec-60674-3- 022	

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TITLE:

Plastic films for electrical purposes - Part 3: Specifications for individual materials - Sheets 4: Polyimide films used for electrical insulation

PROPOSED STABILITY DATE: 2027

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15/956/CDV

3 FOREWORD 4 INTRODUCTION	3 5 6
4 INTRODUCTION 5 1 5 1 6 2 7 3 7 3 7 3 7 3 7 3 7 3 7 3 7 3 7 3 7 3 7 3 7 3 7 3 7 3 7 3 7 5 9 5 9 5 10 6 11 7 12 7 13 8 14 9 15 9 12 10 14 10 15 11 16 12 17 12 18 12 19 12 12 13 13 14 14 1	5 6
5 1 Scope 6 2 Normative references 7 3 Terms and definitions 8 4 Classification 9 5 Designation 10 6 General requirements 11 7 Dimensions 12 7.1 Thickness 13 8 Width 14 9 Properties 15 10 Properties adependent on thickness 16 11 Properties dependent on thickness 17 12 Other properties 18 12.1 Thermal endurance 12.2 Burning characteristics PREVIEW 13 Roll characteristics Standards.itch.actators.itch.ati 14 Roll diameter/film length SIST prEN IEC 60674-3-42022 16 Joins https://standards.itch.actatogs/standards/sst/16908755- 17 Difference between the film width and the roll width <th>6</th>	6
6 2 Normative references 7 3 Terms and definitions 8 4 Classification 9 5 Designation 10 6 General requirements 11 7 Dimensions 12 7.1 Thickness 13 8 Width 14 9 Properties 15 10 Properties dependent on thickness 16 11 Properties dependent on thickness 17 12 Other properties 18 12.1 Thermal endurance 12.1 Thermal endurance PREVIEW 12.2 Burning characteristics Standards.iteh.arcd.siteh.ard 19 12.1 Thermal endurance Standards.iteh.arcd.siteh.ard 11 Roll diameter/film length Standards.iteh.arcd.siteh.ard Standards.iteh.arcd.siteh.ard 14 Roll diameter/film length Standards.iteh.arcd.siteh.ord.siteh.protect.cot.ord.4-3-42022 Standards.iteh.arcd.siteh.ord.siteh.protect.cot.ord.4-3-42022 15 Windability/sag Standards.iteh.arcd.siteh.ord.siteh.ord.siteh.protect.cot.ord.4-3-42022	۰ ۵
7 3 Terms and definitions 8 4 Classification 9 5 Designation 10 6 General requirements 11 7 Dimensions 12 7.1 Thickness 13 8 Width 14 9 Properties 15 10 Properties not dependent on thickness 16 11 Properties dependent on thickness 17 12 Other properties 18 12.1 Thermal endurance 12.2 Burning characteristics PREVIEW 13 Roll characteristics (Standards.itch.ai) 14 Roll diameter/film length SistTprEN IEC 60674-3-42022 15 Windability/sag OSIST prEN IEC 60674-3-42022 16 Joins OSIST prEN IEC 60674-3-42022 17 Difference between the film width and the roll width 4-2022 18 Cores 4-2022 19 Bibliography 4-2022	
 4 Classification	6
 5 Designation	6
6 General requirements 11 7 11 7 12 7.1 13 8 14 9 15 10 16 9 17 10 18 9 19 10 10 Properties 11 10 11 Properties not dependent on thickness 11 11 11 Properties dependent on thickness 12 Other properties 12 Other properties 12.1 Thermal endurance 12.2 Burning characteristics 13 Roll characteristics 14 Roll diameter/film length 15 Windability/sag 16 Joins 17 Difference between the film width and the roll width sit/16908755- 17 Difference between the film width and the roll width sit/15908755- 18 Cores 18 Cores 19 Cores 18 Bibliography 17	7
11 7 Dimensions 12 7.1 Thickness 13 8 Width 14 9 Properties 15 10 Properties not dependent on thickness 16 11 Properties dependent on thickness 17 12 Other properties 18 12.1 Thermal endurance 19 12.2 Burning characteristics 13 Roll characteristics Standards.itch.avcatalog/standards/sst/1b908755- 14 Roll diameter/film length OSIST pren IEC 60674-3-4:2022 15 Windability/sag OSIST pren IEC 60674-3-4:2022 16 Joins OSIST pren IEC 60674-3-4:2022 17 Difference between the land the roll width Standards/sst/1b908755- 17 Difference between the land stock and between the land stock of the land stock of the landards/sst/1b908755- 18 Cores 4-2022 18 Bibliography 27 28 Table 1 – Tolerance on the width	7
12 7.1 Thickness 13 8 Width	7
13 8 Width	7
9 Properties 10 Properties not dependent on thickness 11 Properties dependent on thickness 12 Other properties 12 Other properties 12.1 Thermal endurance 12.2 Burning characteristics 13 Roll characteristics 14 Roll diameter/film length 15 Windability/sag 16 Joins 17 Difference between the film width and the roll-width 18 Cores 19 42022 10 Bibliography	8
10 Properties not dependent on thickness 11 Properties dependent on thickness 12 Other properties 13 Roll endurance 14 Roll characteristics 15 Windability/sag 16 Joins 17 Difference between the film width and the roll-width 18 Cores 19 Lores 10 Table 1 – Tolerance on the width	8
11 Properties dependent on thickness 12 Other properties 13 Roll endurance 14 Roll characteristics 15 Windability/sag 16 Joins 17 Difference between the film width and the roll width 18 Cores 19 4-2022 10 Bibliography	8
12 Other properties 12.1 Thermal endurance 12.2 Burning characteristics 13 Roll characteristics 14 Roll diameter/film length 15 Windability/sag 16 Joins 17 Difference between the film width and the roll width 18 Cores 19 4-2022 10 Bibliography	9
18 12.1 Thermal endurance 19 12.2 Burning characteristics 20 13 Roll characteristics 21 14 Roll diameter/film length 22 15 Windability/sag 23 16 Joins 24 Difference between the film width and the roll-width 25 18 Cores 26 Bibliography 27 Table 1 – Tolerance on the width	10
19 12.2 Burning characteristics 20 13 Roll characteristics 21 14 Roll diameter/film length 22 15 Windability/sag 23 16 Joins 24 17 Difference between the film width and the roll width 25 18 Cores 26 Bibliography 27 Table 1 – Tolerance on the width	10
20 13 Roll characteristics 21 14 Roll diameter/film length 22 15 Windability/sag 23 16 Joins 24 16 Joins 25 17 Difference between the film width and the roll-width 26 Cores 4-2022 27 28 Table 1 – Tolerance on the width	11
 14 Kon drameter/min lengtr	 1
 <u>oSIST prEN_IEC_60674-3-4:2022</u> 16 Joins	1 1
 https://standards.iteh.a/catalog/standards/sist/16908755- 17 Difference between the film width and the roll-width	1 1
 Provide Decemptor 22 - dealer 365e5b415/08ist-pren-iec-60674-3- 18 Cores	12 13
 Bibliography	13
27 28 Table 1 – Tolerance on the width	14
28 Table 1 – Tolerance on the width	
	8
29 Table 2 – Properties not dependent on thickness	9
Table 3 – Properties dependent on thickness	10
Table 4 – Thermal endurance	11
32 Table 5 – Windability/sag	11
Table 6 – Maximum permissible number of joins per roll	12
Table 7 – Minimum permissible distance between splices or between any splice and	
35 the end of the roll (m)	13
Table 8 – Difference between the film width and the roll width	12

37

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15/956/CDV

40		INTERNATIONAL ELECTROTECHNICAL COMMISSION
41		
42 43		PLASTIC FILMS FOR ELECTRICAL PURPOSES –
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45		Part 3: Specification for individual materials
46		Sheet 4: Polyimide films used for electrical insulation
47		
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49		FOREWORD
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81 82	Int ele	ernational Standard IEC 60674-3-4 has been prepared by IEC technical committee 15: Solid ectrical insulating materials.
83 84	Th co	is Second edition cancels and replaces the first edition published in 1993. This edition nstitutes a technical revision.
85 86	Th ed	is edition includes the following significant technical changes with respect to the previous ition:
87 88	a)	this document has been completely revised editorially and technically and included in the IEC 60674 series of standards;
89	b)	new types have been included;
90	c)	the ranges of thickness have been expanded;
91	d)	changes have been made to the requirements of some existing types;
92	-	

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15/956/CDV

⁹³ The text of this International Standard is based on the following documents:

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

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

⁹⁷ This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

98 The committee has decided that the contents of this document will remain unchanged until the 99 stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to 100 the specific document. At this date, the document will be

- 101 reconfirmed,
- 102 withdrawn,
- replaced by a revised edition, or
- 104 amended.

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INTRODUCTION

- 5 -

- This standard is one of a series which deals with plastic films for electrical purposes. The series
 will consist of three parts:
- 108 Part 1: Definitions and general requirements (IEC 60674-1);
- 109 Part 2: Methods of test (IEC 60674-2);
- 110 This standard contains one of the sheets comprising part 3, as follows:
- 111 Sheet 4: Polyimide films used for electrical insulation

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114PLASTIC FILMS FOR ELECTRICAL PURPOSES –115116117117118

119

120 **1 Scope**

121 This International Standard gives the requirements for polyimide films used for electrical 122 purposes.

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.

127 Safety warning: it is the responsibility of the user of the methods contained or referred to in this 128 document to ensure that they are used in a safe manner.

129 2 Normative references Teh STANDARD

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

- 134 IEC 60674-1, Specification for plastic films for electrical purposes Part 1: Definitions and 135 general requirements https://standards.iteh.ai/catalog/standards/sist/1b908755-
- IEC 60674-2:2016, Specification for plastic films for electrical purposes Part 2: Methods of
 test 4-2022
- 138 IEC 60757:1983, Code for designation of colours
- ISO 9773, Plastics Determination of burning behaviour of thin flexible vertical specimens in
 contact with a small-flame ignition source

1413Terms and definitions

- 142 No terms and definitions are listed in this document.
- ISO and IEC maintain terminological databases for use in standardization at the followingaddresses:
- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

147 **4** Classification

148 This standard contains three of the groups comprising part 3 as follows:

Group A: Polyimide films based on poly(N,N'-p,p'-oxidiphenylene pyromellitimide) used for electrical insulation.

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15/956/CDV

- 151 For this Group A following types shall be applied:
- 152 Type 1: General purpose
- 153 Type 2a: One side FEP coated (heat sealable)
- 154 Type 2b: Two side FEP coated (heat sealable)
- 155 Type 3a: Dimensionally stabilized (low shrinkage)
- 156 Type 3b: Dimensionally stabilized (low CTE (Coefficient of Thermal Expansion))
- 157 Type 4: Heat shrinkable (withdrawn; formally used in IEC 60674-3-4:1993)
- 158 Type 5: Corona resistant (under consideration)
- Group B: Polyimide films based on poly(N,N'-p,phenylenebiphenyl tetracarboxyl imide) used for electrical insulation.
- 161 No assigned by type for this Group B
- Group C: Polyimide films based on poly(N,N'-p,p-oxidiphenylene biphenyl-tetracarboxylimide) used for electrical insulation.
- 164 No assigned by type for this Group C.

165 5 Designation

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- 166 The plastic film shall be identified by the following designation:
- 167 Designation of the film IEC 60674-3-4 PI Group type thickness in micrometres width in
- 168 millimetres length in metres colour.

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- 169 Example: https://standards.iteh.ai/catalog/standards/sist/1b908755-
- 170 Polyimide film IEC 6067743-44-9Ph Group Addype 5 e 500 1-20 si 200 rene iec-60674-3-
- 171 (nc = natural colour; other colours according to IEC 60757).²²

172 6 General requirements

- The material shall be made from polyimide polymer and shall conform to the requirements laid down in IEC 60674-1.
- Group A Type 1 material shall be a flexible, self-supporting film made from polyimide
 polymer.
- Group A Type 2a and Type 2b shall have a heat sealable coating of fluoroethylene propylene (FEP) resin on one or both sides of type 1 material.
- Group A Type 3a and Type 3b shall be identical to Group A type 1 except for dimensional
 stability with improved low shrinkage and improved low CTE, respectively.
- Group A type 5 shall be a flexible, self-supporting film made from polyimide polymer using
 fillers for an upgraded lifetime under presence of corona discharges.

183 **7 Dimensions**

184 **7.1 Thickness**

- 185 The film thickness shall be measured by a roll in accordance with the requirements of Subclause
- 4.3.2 of IEC 60674-2:2016. The mechanical scanning method (Subclause 4.2.2 of IEC 60674 2:2016) could be used when required.

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- There are no requirements for thickness in this document, but preferred thicknesses in μm are
 as follows:
- 190 5; 7,5; 10; 12,5; 20; 25; 37,5; 50; 75; 100; 125; 150; 175.
- The thickness tolerance shall comply with the requirements in Subclause 4.1 of IEC 60674-1 unless otherwise specified in the purchase contract.

193 **8 Width**

- The film width shall be measured in accordance with the requirements of Clause 6 of IEC 60674-2:2016.
- 196 Preferred widths cannot be given on account of the great variety of applications.
- 197 The tolerance on the width shall comply with the requirements on Table 1.
- 198

 Table 1 – Tolerance on the width



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9 Properties d71f-492a-ad29-dea365e5b415/osist-pren-iec-60674-3-

4-2022

200 10 Properties not dependent on thickness

Properties which are not dependent on thickness shall comply with the requirements on Table2022.