

© Copyright SEK Svensk Elstandard. Reproduction in any form without permission is prohibited.

**Fasta isolermaterial –
Plastfilmer för elektriska ändamål –
Del 3: Specifikationer för enskilda material –
Blad 4: Polyimidfilmer för elektrisk isolering**

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

Som svensk standard gäller europastandarden EN IEC 60674-3-4:2022. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60674-3-4:2022.

Nationellt förord

Europastandarden EN IEC 60674-3-4:2022

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60674-3-4, Second edition, 2022 - Plastic films for electrical purposes - Part 3: Specifications for individual materials - Sheets 4: Polyimide films used for electrical insulation**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60674-3-4 till 6, utg 1:1996, gäller ej fr o m 2025-07-27.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

English Version

**Plastic films for electrical purposes - Part 3: Specifications for individual materials - Sheets 4: Polyimide films used for electrical insulation
(IEC 60674-3-4:2022)**

Films plastiques à usages électriques - Partie 3:
Spécifications pour matériaux particuliers - Feuille 4: Films
de polyimide utilisés dans l'isolation électrique
(IEC 60674-3-4:2022)

Isolierfolien für elektrotechnische Zwecke - Teil 3:
Bestimmungen für einzelne Materialien - Blatt 4: Polyimid-
Folien zur elektrischen Isolierung
(IEC 60674-3-4:2022)

This European Standard was approved by CENELEC on 2022-07-27. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 15/956/CDV, future edition 2 of IEC 60674-3-4, prepared by IEC/TC 15 "Solid electrical insulating materials" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60674-3-4:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-04-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-07-27

This document supersedes EN 60674-3-4 to 6:1995 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60674-3-4:2022 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60674-3 (series) NOTE Harmonized as EN 60674-3 (series)

ISO 1183-2:2019 NOTE Harmonized as EN ISO 1183-2:2019 (not modified)

ISO 11357-3:2018 NOTE Harmonized as EN ISO 11357-3:2018 (not modified)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60674-1	1980	Specification for plastic films for electrical purposes. Part 1: Definitions and general requirements	EN 60674-1	1998
IEC 60674-2	2016	Specification for plastic films for electrical purposes - Part 2: Methods of test	EN 60674-2	2017
IEC 60757	-	Code for designation of colours	EN IEC 60757	-
ISO 9773	-	Plastics - Determination of burning behaviour of thin flexible vertical specimens in contact with a small-flame ignition source	EN ISO 9773	-

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Plastic films for electrical purposes –
Part 3: Specifications for individual materials – Sheet 4: Polyimide films used
for electrical insulation**

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.035.20

ISBN 978-2-8322-3921-6

Warning! Make sure that you obtained this publication from an authorized distributor. Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.
--

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 Classification.....	7
5 Designation	7
6 General requirements	7
7 Dimensions.....	8
7.1 Thickness	8
7.2 Width	8
8 Properties.....	8
8.1 Properties not dependent on thickness	8
8.2 Properties dependent on thickness	9
9 Other properties	10
9.1 Thermal endurance	10
9.2 Burning characteristics.....	11
10 Roll characteristics	11
10.1 Roll diameter/film length	11
10.2 Windability/sag	11
10.3 Joins.....	12
10.4 Difference between the film width and the roll width	13
10.5 Cores.....	13
Bibliography.....	14
Table 1 – Tolerance on the width	8
Table 2 – Properties not dependent on thickness	9
Table 3 – Properties dependent on thickness.....	10
Table 4 – Thermal endurance	11
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 the end of the roll (m)	13
Table 8 – Difference between the film width and the roll width	13

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PLASTIC FILMS FOR ELECTRICAL PURPOSES –**Part 3: Specifications for individual materials –
Sheet 4: Polyimide films used for electrical insulation**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60674-3-4 has been prepared by IEC technical committee 15: Solid electrical insulating materials. It is an International Standard.

This second edition cancels and replaces the first edition published in 1993. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) this document has been completely revised editorially and technically and included in the IEC 60674 series of standards;
- b) new types have been included;
- c) the ranges of thickness have been expanded;
- d) changes have been made to the requirements of some existing types.

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

Draft	Report on voting
15/956/CDV	15/971/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60674 series, published under the general title *Plastic films for electrical purposes*, can be found on the IEC website.

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

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

INTRODUCTION

This document is one of a series which deals with plastic films for electrical purposes. The series will consist of three parts:

Part 1: Definitions and general requirements (IEC 60674-1);

Part 2: Methods of test (IEC 60674-2);

Part 3: Specifications for individual materials.

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

Sheet 4: Polyimide films used for electrical insulation

PLASTIC FILMS FOR ELECTRICAL PURPOSES –

Part 3: Specifications for individual materials – Sheet 4: Polyimide films used for electrical insulation

1 Scope

This sheet of IEC 60674-3 gives the requirements for polyimide films used for electrical 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 is based on the actual requirements necessary for adequate performance in that application and not based on this specification alone.

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

2 Normative references

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.

IEC 60674-1:1980, *Specification for plastic films for electrical purposes – Part 1: Definitions and general requirements*

IEC 60674-2:2016, *Specification for plastic films for electrical purposes – Part 2: Methods of test*

IEC 60757, *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*