



NSAI
Standards

Irish Standard
I.S. EN 60674-3-8:2011&A1:2017

Plastic films for electrical purposes -- Part 3:
Specifications for individual materials --
Sheet 8: Balanced biaxially oriented
polyethylene naphthalate (PEN) films used
for electrical insulation

I.S. EN 60674-3-8:2011&A1:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 60674-3-8:2011/A1:2017

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National Foreword

I.S. EN 60674-3-8:2011&A1:2017 is the adopted Irish version of the European Document EN 60674-3-8:2011, Plastic films for electrical purposes -- Part 3: Specifications for individual materials -- Sheet 8: Balanced biaxially oriented polyethylene naphthalate (PEN) films used for electrical insulation

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EUROPEAN STANDARD

EN 60674-3-8:2011/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2017

ICS 29.035.20

English Version

Plastic films for electrical purposes -
Part 3: Specifications for individual materials -
Sheet 8: Balanced biaxially oriented polyethylene naphthalate
(PEN) films used for electrical insulation
(IEC 60674-3-8:2011/A1:2016)

Films plastiques à usages électriques -
Partie 3: Spécifications pour matériaux particuliers -
Feuille 8: Films de polynaphtalate d'éthylène (PEN) à
orientation bi-axiale équilibrée, utilisés dans l'isolation électrique
(IEC 60674-3-8:2011/A1:2016)

Isolierfolien für elektrotechnische Zwecke -
Teil 3: Bestimmungen für einzelne Werkstoffe -
Blatt 8: Isotrop biaxial orientierte Polyethylenaphthalat-
(PEN)-Folien zur elektrischen Isolierung
(IEC 60674-3-8:2011/A1:2016)

This amendment A1 modifies the European Standard EN 60674-3-8:2011; it was approved by CENELEC on 2016-12-27. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 60674-3-8:2011/A1:2017

European foreword

The text of document 15/738/CDV, future IEC 60674-3-8:2011/A1, prepared by IEC/TC 15 "Solid electrical insulating materials" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60674-3-8:2011/A1:2017.

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) 2017-09-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-03-31

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60674-3-8

August 2011

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English version

**Plastic films for electrical purposes -
Part 3: Specifications for individual materials -
Sheet 8: Balanced biaxially oriented polyethylene naphthalate (PEN) films
used for electrical insulation
(IEC 60674-3-8:2011)**

Films plastiques à usages électriques -
Partie 3: Spécifications pour matériaux
particuliers -
Feuille 8: Films de polynaphtalate
d'éthylène (PEN) à orientation bi-axiale
équilibrée, utilisés dans l'isolation
électrique
(CEI 60674-3-8:2011)

Isolierfolien für elektrotechnische Zwecke
– Teil 3: Bestimmungen für einzelne
Werkstoffe – Blatt 8: Isotrop biaxial
orientierte Polyethylenaphthalat-(PEN)-
Folien zur elektrischen Isolierung
(IEC 60674-3-8:2011)

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 15/631/FDIS, future edition 1 of IEC 60674-3-8, prepared by IEC TC 15, Solid electrical insulating materials, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60674-3-8 on 2011-08-17.

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- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2014-08-17

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60674-3-8:2011 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

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.

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 60068-2-66	1994	Environmental testing - Part 2-66: Test methods - Test Cx: Damp heat, steady state (unsaturated pressurized vapour)	EN 60068-2-66	1994
IEC 60216-5 + corr. December	2008 2009	Electrical insulating materials - Thermal endurance properties - Part 5: Determination of relative thermal endurance index (RTE) of an insulating material	EN 60216-5	2008
IEC 60674-1	1980	Specification for plastic films for electrical purposes - Part 1: Definitions and general requirements	EN 60674-1	1998
IEC 60674-2 + corr. November	1988 1995	Specification for plastic films for electrical purposes - Part 2: Methods of test	EN 60674-2	1998
ISO 11357-3	1999	Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of temperature and enthalpy of melting and crystallization	-	-

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IEC 60674-3-8

Edition 1.0 2011-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Plastic films for electrical purposes –
Part 3: Specifications for individual materials – Sheet 8: Balanced biaxially
oriented polyethylene naphthalate (PEN) films used for electrical insulation**

**Films plastiques à usages électriques –
Partie 3: Spécifications pour matériaux particuliers – Feuille 8: Films de
polynaphtalate d'éthylène (PEN), à orientation bi-axiale équilibrée, utilisés
dans l'isolation électrique**



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IEC 60674-3-8

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Plastic films for electrical purposes –
Part 3: Specifications for individual materials – Sheet 8: Balanced biaxially
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PLASTIC FILMS FOR ELECTRICAL PURPOSES –

Part 3: Specifications for individual materials – Sheet 8: Balanced biaxially oriented polyethylene naphthalate (PEN) 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.
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International Standard IEC 60674-3-8 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

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

FDIS	Report on voting
15/631/FDIS	15/643/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.

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

A list of all the parts in the IEC 60674 series, 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 publication will remain unchanged until the stability 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
- amended.

INTRODUCTION

This International Standard is one of a series which deals with plastic films for electrical purposes.

The series consists 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 (IEC 60674-3).

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

Sheet 8: Balanced biaxially oriented polyethylene naphthalate (PEN) films used for electrical insulation.

PLASTIC FILMS FOR ELECTRICAL PURPOSES –

Part 3: Specifications for individual materials – Sheet 8: Balanced biaxially oriented polyethylene naphthalate (PEN) films used for electrical insulation

1 Scope

This International Standard gives the requirements for balanced biaxially oriented polyethylene naphthalate (PEN) films for use as electrical insulation.

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.

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

IEC 60674-2:1988, *Specification for plastic films for electrical purposes – Part 2: Methods of test*

IEC60068-2-66:1994, *Environmental testing – Part 2: Test methods – Test Cx: Damp heat, steady state (unsaturated pressurized vapour)*

IEC 60216-5:2008, *Electrical insulating materials – Thermal endurance properties – Part 5: Determination of relative thermal endurance index (RTE) of an insulating material*

ISO11357-3:1999, *Plastics – Differential scanning calorimetry (DSC) – Part 3: Determination of temperature and enthalpy of melting and crystallization*

3 Classification

The PEN film shall be of the following types:

- Type 1a: General purpose, high hydrolytic stability grade.
- Type 1b: General purpose, standard grade.
- Type 2: Capacitor grade.

4 Designation

The plastic film shall be identified by the following designation:

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