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INTERNATIONAL STANDARD



**Plastic films for electrical purposes –
Part 3: Specifications for individual materials – Sheet 1: Biaxially oriented
polypropylene (PP) films for capacitors**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PLASTIC FILMS FOR ELECTRICAL PURPOSES –

**Part 3: Specifications for individual materials –
Sheet 1: Biaxially oriented polypropylene (PP) films for capacitors**

FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60674-3-1:1998+AMD1:2011 CSV. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 60674-3-1 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This second edition cancels and replaces the first edition published in 1998 and Amendment 1:2011. 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) the test methods have been updated to reflect today's state of the art.

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

Draft	Report on voting
15/909/CDV	15/925/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/standardsdev/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.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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INTRODUCTION

This standard 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 (IEC 60674-3).

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

Sheet 1: Biaxially oriented (PP) polypropylene films for capacitors.

PLASTIC FILMS FOR ELECTRICAL PURPOSES –

Part 3: Specifications for individual materials – Sheet 1: Biaxially oriented polypropylene (PP) films for capacitors

~~1~~ **General**

1 Scope

This sheet of IEC 60674-3 gives the requirements for biaxially oriented polypropylene film having a smooth or rough surface, corona treated when required for vacuum metallization. The films are for use as dielectric in capacitors.

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~~ 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:~~1988~~2016, *Specification for plastic films for electrical purposes – Part 2: Methods of test*

~~IEC 61074:1991, *Determination of heats and temperatures of melting and crystallization of electrically insulating materials by differential scanning calorimetry*~~

~~ISO 534:1988, *Paper and board – Determination of thickness and apparent bulk density or apparent sheet density*~~

~~ISO 11357-3, *Plastics – Differential scanning calorimetry (DSC) – Part 3: Determination of temperature and enthalpy of melting and crystallization*~~

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Plastic films for electrical purposes –
Part 3: Specifications for individual materials – Sheet 1: Biaxially oriented
polypropylene (PP) films for capacitors**

**Films plastiques à usages électriques –
Partie 3: Spécifications pour matériaux particuliers – Feuille 1: Films de
polypropylène biorienté (PP) pour condensateurs**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PLASTIC FILMS FOR ELECTRICAL PURPOSES –**Part 3: Specifications for individual materials –
Sheet 1: Biaxially oriented polypropylene (PP) films for capacitors**

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PLASTIC FILMS FOR ELECTRICAL PURPOSES –

Part 3: Specifications for individual materials –

Sheet 1: Biaxially oriented polypropylene (PP) films for capacitors

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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*

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

FILMS PLASTIQUES À USAGES ÉLECTRIQUES –

**Partie 3: Spécifications pour matériaux particuliers –
Feuille 1: Films de polypropylène biorienté (PP) pour condensateurs**

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L'IEC 60674-3-1 a été établie par le comité d'études 15 de l'IEC: Matériaux isolants électriques solides.

Cette deuxième édition annule et remplace la première édition parue en 1998 ainsi que l'Amendement 1:2011. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) ce document a été entièrement revu sur le plan rédactionnel et technique et inclus dans les normes de la série IEC 60674;
- b) les méthodes d'essai ont été mises à jour pour refléter l'état actuel de la technique.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
15/909/CDV	15/925/RVC

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/standardsdev/publications.

Une liste de toutes les parties de la série IEC 60674, publiées sous le titre général *Films plastiques à usages électriques*, peut être consultée sur le site web de l'IEC.

Les futurs documents de cette série porteront dorénavant le nouveau titre général cité ci-dessus. Le titre des documents existant déjà dans cette série sera mis à jour lors de la prochaine édition.

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INTRODUCTION

La présente norme fait partie d'une série traitant des films en matière plastique à usages électriques. Cette série comporte trois parties:

Partie 1: Définitions et exigences générales (IEC 60674-1);

Partie 2: Méthodes d'essai (IEC 60674-2);

Partie 3: Spécifications pour matériaux particuliers (IEC 60674-3).

La présente norme comprend l'une des feuilles qui composent la Partie 3 comme suit:

Feuille 1: Films de polypropylène biorienté (PP) pour condensateurs.

FILMS PLASTIQUES À USAGES ÉLECTRIQUES –

Partie 3: Spécifications pour matériaux particuliers –

Feuille 1: Films de polypropylène biorienté (PP) pour condensateurs

1 Domaine d'application

La présente feuille de l'IEC 60674-3 donne les exigences relatives aux films de polypropylène biorienté à surface lisse ou rugueuse, avec traitement par effet couronne, si cela est exigé, pour la métallisation sous vide. Les films sont utilisés comme diélectrique dans les condensateurs.

Les matériaux conformes à la présente spécification satisfont à des niveaux établis de performance. Toutefois, le choix d'un matériau par un utilisateur pour une application spécifique repose sur les exigences réelles nécessaires pour obtenir des performances adéquates de l'application concernée, et non sur la seule présente spécification.

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IEC 60674-1:1980, *Spécification pour les films en matière plastique à usages électriques – Première partie: Définitions et prescriptions générales*

IEC 60674-2:2016, *Spécification pour les films en matière plastique à usages électriques – Partie 2: Méthodes d'essai*