

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Specification for plastic films for electrical purposes –  
Part 2: Methods of test**

**Spécification pour les films en matière plastique à usages électriques –  
Partie 2: Méthodes d'essai**

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**SPECIFICATION FOR PLASTIC FILMS  
FOR ELECTRICAL PURPOSES –****Part 2: Methods of test****FOREWORD**

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**IEC 60674-2 edition 2.1 contains the second edition (2016-11) [documents 15/742/CDV and 15/760/RVC] and its corrigendum 1 (2017-12), and its amendment 1 (2019-01) [documents 15/839/CDV and 15/864/RVC].**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**

International Standard IEC 60674-2 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This second edition constitutes a technical revision.

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

- a) this document was completely revised editorially and technically and included in the IEC 60674 series of standards;
- b) the test methods are updated to reflect today's state of the art;
- c) a method to obtain DC electric strength is now specified according to IEC 60243-2.

The French version of this standard has not been voted upon.

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

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

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IEC 60674-2:2016

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## INTRODUCTION

This document 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 (all parts))

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## SPECIFICATION FOR PLASTIC FILMS FOR ELECTRICAL PURPOSES –

### Part 2: Methods of test

#### 1 Scope

This part of IEC 60674 is applicable to plastic films used for electrical purposes. This part of IEC 60674 gives methods of test.

#### 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 60212:2010, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60216 (all parts), *Electrical insulating materials – Thermal endurance properties*

IEC 60243-1:2013, *Electric strength of insulating materials – Test methods – Part 1: Tests at power frequencies*

IEC 60243-2, *Electric strength of insulating materials – Test methods – Part 2: Additional requirements for tests using direct voltage* [60674-2:2016](https://standards.iteh.ai/catalog/standards/iec/8503529e-ccc1-4e64-b75a-0bd509b0907/iec-60674-2-2016)

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IEC 60250:1969, *Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths*

IEC 60343, *Recommended test methods for determining the relative resistance of insulating materials to breakdown by surface discharges*

IEC 60394-2:1972, *Varnished fabrics for electrical purposes – Part 2: Methods of test*

IEC 60426, *Electrical insulating materials – Determination of electrolytic corrosion caused by insulating materials – Test methods*

IEC 60454-2:2007, *Pressure-sensitive adhesive tapes for electrical purposes – Part 2: Methods of test*

IEC 60589, *Methods of test for the determination of ionic impurities in electrical insulating materials by extraction with liquids*

~~IEC TR 60648, *Method of test for coefficients of friction of plastic film and sheeting for use as electrical insulation*~~

IEC 60674-3 (all parts), *Specification for plastic films for electrical purposes – Part 3: Specifications for individual materials*

IEC 62631-3-1, *Dielectric and resistive properties of solid insulating materials – Part 3-1: Determination of resistive properties (DC methods) – Volume resistance and volume resistivity – General method*

IEC 62631-3-2, *Dielectric and resistive properties of solid insulating materials – Part 3-2: Determination of resistive properties (DC methods) – Surface resistance and surface resistivity*

ISO 527-3:1995, *Plastics – Determination of tensile properties – Part 3: Test conditions for films and sheets*

ISO 534, *Paper and board – Determination of thickness, density and specific volume*

ISO 1183, *Plastics – Methods for determining the density of non-cellular plastics – Part 1: Immersion method, liquid pycnometer method and titration method*

ISO 4591:1992, *Plastics – Film and sheeting – Determination of average thickness of a sample, and average thickness and yield of a roll, by gravimetric techniques (gravimetric thickness)*

ISO 4592, *Plastics – Film and sheeting – Determination of length and width*

ISO 4593, *Plastics – Film and sheeting – Determination of thickness by mechanical scanning*

ISO 6383-1, *Plastics – Film and sheeting – Determination of tear resistance – Part 1: Trouser tear method*

ISO 6383-2, *Plastics – Film and sheeting – Determination of tear resistance – Part 2: Elmendorf method*

ISO 8295, *Plastics – Film and sheeting – Determination of the coefficients of friction*

ISO 11357-3:2011, *Plastics – Differential scanning calorimetry (DSC) – Part 3: Determination of temperature and enthalpy of melting and crystallization*

### **3 General notes on tests**

**3.1** Discard at least the first three layers of film from the roll to be tested before removing test specimens.

**3.2** Sample rolls shall be exposed for at least 24 h to the standard atmosphere  $23\text{ °C} \pm 2\text{ K}$  and  $50\% \pm 5\% \text{ RH}$  before test specimens are removed for test. Unless otherwise specified, all individual test specimens shall be conditioned for 1 h and tested in the same standard atmosphere.

## **4 Thickness**

### **4.1 General**

Thickness shall be measured by any one or more of the methods given below as required by IEC 60674-3 (all parts).