

ICS 29.035.20
CCS K 15



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13542.3-2026

Replacing GB/T 13542.3-2006

**Plastic films for electrical insulation - Part 3: Biaxially oriented
polypropylene films for capacitors**

电气绝缘用薄膜 第3部分：电容器用双轴定向聚丙烯薄膜

(English Translation)

Issued on: July 2, 2026

Implemented on: February 1, 2027

Issued by: State Administration for Market Regulation

Table of Contents

- Foreword
- 1 Scope
- 2 Normative references
- 3 Terms and Definitions
- 4 Classification

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 3 of GB/T 13542 "Films for Electrical Insulation". GB/T 13542 has already published the following parts.

---Part 1: Definitions and General Requirements;

---Part 2: Test Methods;

---Part 3: Biaxially Oriented Polypropylene Film for Capacitors;

---Part 4: Polyester Film;

---Part 5: Biaxially Oriented Polynaphthalene Films;

---Part 6: Polyimide films for electrical insulation.

Compared with GB/T 13542.3-2006, the main technical changes in the "Membranes" standard, apart from structural adjustments and editorial modifications, are as follows.

---The scope has been changed (see Chapter 1, Chapter 1 of the 2006 edition);

---Added a classification of Type 3 high electrical strength thin films (porosity 350 mm (see 9.2, Table 7);

This document is modified to adopt IEC 60674-3-1:2021 "Plastic films for electrical applications - Part 3: Specifications for individual materials - Part 1: Capacitors".

Biaxially oriented polypropylene (PP) film for equipment.

This document has undergone the following structural adjustments compared to IEC 60674-3-1:2021.

---Tables 3, 5, and 7 correspond to Tables 2, 3, and 4 in IEC 60674-3-1:2021;

---8.2.1 corresponds to 8.2 of IEC 60674-3-1:2021.

The technical differences between this document and IEC 60674-3-1:2021, and the reasons therefor, are as follows.

---The scope has been modified (see Chapter 1) to meet the needs of technical content;

---The requirement of a porosity of Introduction this document is widely used in the research and development, production, quality inspection, sales, acceptance, and technical exchange of this product. This revision will incorporate domestic realities.

In accordance with the technical changes in IEC 60674-3:2021, adjustments have been made to product performance and technical requirements to improve the timeliness of the standard and promote the domestic production of insulating films.

Applications in power electronic equipment in fields such as ultra-high voltage, new energy, new energy vehicles, rail transit, and high-frequency pulse.

Electrical insulating films involve a wide variety of products, and the corresponding IEC 60674 "Plastic films for electrical applications" is divided into different parts (or sections).

The drafting process was designed to maintain basic consistency with the corresponding IEC standards, and the technical performance requirements for different types of thin film products also vary.

Similarly, when compiling this product standard, it is compiled as a separate section.

GB/T 13542 specifies the definition and general requirements, test methods, and product standards for various individual materials of electrical insulating films. It is proposed that six...

It consists of several parts.

---Part 1: Definitions and General Requirements. The purpose is to define the terminology and definitions, and general requirements, for electrical insulating films.

---Part 2: Test Methods. The objective is to determine the test methods for electrical insulating films.

---Part 3: Biaxially Oriented Polypropylene Films for Capacitors. The aim is to determine the classification of biaxially oriented polypropylene films for capacitors.

Related to naming, size, performance requirements, and membrane roll characteristics.

---Part 4: Polyester Films. The purpose is to determine the classification, dimensions, performance requirements, and roll characteristics of polyester films for electrical insulation.

---Part 5: Biaxially Oriented Polynaphthalene Films. The aim is to determine the

classification of biaxially oriented polynaphthalene (PEN) films for electrical insulation.

Naming and requirements.

---Part 6: Polyimide Films for Electrical Insulation. The purpose is to determine the classification and nomenclature of polyimide films for electrical insulation, and their dimensions.

Size, performance requirements, and membrane roll characteristics.

Electrical insulation film

1 Scope

This document specifies the classification, nomenclature, and requirements for biaxially oriented polypropylene films with smooth or rough surfaces used as capacitor dielectrics.

Note: Vacuum metallized thin films are corona treated.

This document applies to biaxially oriented polypropylene films used as capacitor dielectrics.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 13542.1-2009 Thin films for electrical insulation - Part 1: Definitions and general requirements (IEC 60674-1:1980, MOD) GB/T 13542.2-2021 Thin films for electrical insulation - Part 2: Test methods (IEC 60674-2:2019, MOD) GB/T 19466.3-2025 Differential Scanning Calorimetry (DSC) for Plastics - Part 3: Determination of Melting and Crystallization Temperatures and Enthalpies (ISO 11357-3:2018, MOD) ISO 1183-2:2026 Plastics-Determination of density of non-foamed plastics-Part 2: Density gradient column method (Plastics-od) Note. GB/T 1033.2-2010 Determination of density of non-foamed plastics - Part 2: Density gradient column method (ISO 1183-2:2004, MOD)

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4 Classification

Polypropylene films are classified as follows.

- 1) Type 1a. Thin film without corona treatment;
- 2) Type 1b. Thin films with single-sided pretreatment to facilitate metal vacuum deposition;
- 3) Type 1c. Film with double-sided pretreatment.
- b) Type 2. A film with at least one rough surface (porosity $\geq 5\%$, see 8.9).
 - 1) Type 2a. Thin film without corona treatment;
 - 2) Type 2b. Thin films with single-sided pretreatment to facilitate metal vacuum deposition;
 - 3) Type 2c. Film with double-sided pretreatment.
- c) Type 3. Thin films with high electrical strength (porosity