

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Non-cellulosic papers for electrical purposes –
Part 1: Definitions and general requirements**

**Papiers non cellulosiques à usages électriques –
Partie 1: Définitions et exigences générales**

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NON-CELLULOSIC PAPERS FOR ELECTRICAL PURPOSES –**Part 1: Definitions and general requirements**

FOREWORD

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International Standard IEC 60819-1 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This third edition cancels and replaces the second edition published in 1995, and constitutes a minor revision and technical updating.

The main changes from the previous edition are as follows: the list of materials to be used in combination was updated with the addition of new materials made available by progress in technology and described in Subclauses 2.7 and 2.8.

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

CDV	Report on voting
15/471/CDV	15/506A/RVC

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 60819 series, under the general title *Non-cellulosic papers 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 maintenance result 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

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INTRODUCTION

This International Standard forms an element of a series which deals with non-cellulosic papers for electrical purposes.

The series consists of three parts:

Part 1: Definitions and general requirements (IEC 60819-1)

Part 2: Methods of test (IEC 60819-2)

Part 3: Specifications for individual materials (IEC 60819-3)

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NON-CELLULOSIC PAPERS FOR ELECTRICAL PURPOSES –

Part 1: Definitions and general requirements

1 Scope

This part of IEC 60819 gives the definitions and general requirements for non-cellulosic papers 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 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 Terms and definitions

For the purpose of this document, the following definitions apply:

2.1

aramid (aromatic polyamide) paper

wet-laid, non-woven paper in which the fibres are synthetic aromatic polyamide having at least 85 % of the amide linkage attached directly to two aromatic rings. Aramid paper may contain materials with or without the addition of suitable organic and/or inorganic filler and/or binder materials.

2.2

polyethylene paper

wet-laid, non-woven paper made from specially prepared polyethylene (PE) fibres with or without the addition of suitable organic and/or inorganic filler and/or binder materials

2.3

polypropylene paper

wet-laid, non-woven paper made from specially prepared polypropylene fibres (PP) with or without the addition of suitable organic and/or inorganic filler and/or binder materials

2.4

glass paper

wet-laid, non-woven paper made from glass micro-fibres made with or without the addition of suitable organic and/or inorganic filler and/or binder materials. In cases of poor fibre adhesion, the situation may be remedied by acid treatment to produce a slight gelation which will act as a binder, or by adding an inorganic binder.

2.5

ceramic paper

wet-laid, non-woven paper made from ceramic fibres. For examples, alumina-silica paper composed of approximately 51 % alumina (Al_2O_3) and 47 % silica (SiO_2). Ceramic papers may be modified with or without the addition of suitable organic and/or inorganic filler and/or binder materials.

2.6

poly(ethylene)-terephthalate paper

dry-laid fibre mat paper made from specially prepared polyethylene-terephthalate (PET) fibres with or without the addition of suitable organic and/or inorganic filler and/or binder materials

NOTE Polyethylene-terephthalate paper is sometimes erroneously called PETP paper.

2.7

filled glass paper

paper in which at least 65 % of the raw material composition is glass fibres and inorganic fillers (such as silicate of aluminium) with or without the addition of other fibres and/or binder material

2.8

hybrid inorganic-organic paper

wet-laid, non-woven paper made from organic polymer fibres, such as Aramid or PET fibres and inorganic fillers, such as silicates of alumina with or without addition of other fibres and/or binder materials

3 General requirements

3.1 All materials in any one consignment shall be consistent and have properties within the limits of this standard throughout the whole sheet or throughout the whole length of each roll. The surface shall be uniform, reasonably smooth and reasonably free from defects such as bubbles, pin holes, creases and flaws.

3.2 When delivered in rolls, it shall be capable of being unrolled without damage.

3.3 The combined materials shall be free of conducting particles and other undesirable inclusions.

3.4 Materials delivered in sheets cut to length shall be reasonably free from warp.

4 Dimensions

Thickness and thickness tolerances are dealt with in the Sheets of the IEC 60819-3 series. Other dimensions and tolerances shall be agreed by the purchaser and the supplier.

5 Joins

For material in roll form, the allowable frequency of joins, the details of their construction, and identification shall be agreed by the purchaser and the supplier.

6 Conditions of supply

Material in roll form shall be supplied on cardboard roll or other suitable core. The inner diameter of the core shall be agreed by purchaser and supplier, and it should preferably be, 76 mm or 152 mm.

Material in sheet form shall be supplied in stacks.

The paper shall be placed in a package which ensures adequate protection during transport, handling and storage.

Each unit pack, and each package containing a number of unit packs, shall have the following information clearly and indelibly marked on it:

- reference to this standard;
- product type, in accordance with Clause 2;
- for materials delivered in rolls: the width and the length or mass of each roll;
- for materials delivered in sheets: the dimensions of the sheets and the number of sheets in a stack or the mass of the stack;
- the nominal thickness of the material;
- the number of rolls or stacks in a larger package;
- information about joins;
- batch number;
- the nominal thickness of the paper;
- date of manufacture.

This information shall be clearly marked on the outside of the package.

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Bibliography

IEC 60819-3-1, *Non-cellulosic papers for electrical purposes – Part 3: Specification for individual materials – Sheet 1: Filled glass paper*

IEC 60819-3-2, *Non-cellulosic papers for electrical purposes – Part 3: Specification for individual materials – Sheet 2: Hybrid inorganic-organic paper*

IEC 60819-3-3, *Non-cellulosic papers for electrical purposes – Part 3: Specification for individual materials – Sheet 3: Unfilled aramid (aromatic polyamide) papers*

IEC 60819-3-4, *Non-cellulosic papers for electrical purposes – Part 3: Specification for individual materials – Sheet 4: Aramid fibre paper containing not more than 50% of mica particles*

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