INTERNATIONAL STANDARD

IEC 60454-3-4

Third edition
2007-06

Pressure-sensitive adhesive tapes for electrical purposes –

Part 3: Specifications for individual materials – Sheet 4: Cellulose paper, creped and non-creped, with rubber thermosetting adhesive



Reference number
IEC 60454-3-4:2007(E)

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE H

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRESSURE-SENSITIVE ADHESIVE TAPES FOR ELECTRICAL PURPOSES –

Part 3: Specifications for individual materials – Sheet 4: Cellulose paper, creped and non-creped, with rubber thermosetting adhesive

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International Standard IEC 60454-3-4 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This third edition of IEC 60454-3-4 replaces the second edition, published in 1998, as well as IEC 60454-3-5, published in 1998. It constitutes a technical revision.

The main changes with regard to the second edition is the consolidation of this part with IEC 60454-3-5. All requirements were confirmed.

IEC 60454-3-5 is to be withdrawn at the time of this publication.

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

FDIS	Report on voting
15/369/FDIS	15/380/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.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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INTRODUCTION

This International Standard is one of a series, which deals with pressure-sensitive adhesive tapes, intended primarily for electrical purposes.

This series consists of three parts:

– Part 1: General requirements (IEC 60454-1).
– Part 2: Methods of test (IEC 60454-2).
– Part 3: Specifications for individual materials (IEC 60454-3).

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

Sheet 4: Cellulose paper, creped and non-creped, with rubber thermosetting adhesive

SAFETY WARNING

It is the responsibility of the user of the methods contained or referred to in this standard to ensure that they are used in a safe manner.

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PRESSURE-SENSITIVE ADHESIVE TAPES FOR ELECTRICAL PURPOSES –

Part 3: Specifications for individual materials – Sheet 4: Cellulose paper, creped and non-creped, with rubber thermosetting adhesive

1 Scope

This sheet of IEC 60454-3 contains the requirements for pressure-sensitive adhesive tapes made with cellulose paper, creped and non-creped, with rubber thermosetting adhesive.

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.

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 60426:1973, *Test methods for determining electrolytic corrosion with insulating materials*

IEC 60454-1:1992, *Specifications for pressure-sensitive adhesive tapes for electrical purposes – Part 1: General requirements*

IEC 60454-2, S*pecification for pressure-sensitive adhesive tapes for electrical purposes – Part 2: Methods of test*[1]

3 Terms and definitions

For the purposes of this document, refer to the definitions applicable to these materials in IEC 60454-1.

4 Classification and designation

The products supplied according to this standard shall be classified as follows:

Cellulose paper, creped and non-creped, with rubber thermosetting adhesive

Type 1: Cellulose paper non-creped, with rubber thermosetting adhesive with a temperature index of 105 with a rubber thermosetting adhesive.

Type 2: Cellulose paper creped, with rubber thermosetting adhesive with a temperature index of 105 with a rubber thermosetting adhesive.

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1 A third edition of IEC 60454-2 is due to be published which will replace the current second edition dated 1994.

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The products shall be designated for ordering purposes as follows:

Type 1: IEC 60454-3-4/P-C/105/R-Tc

Type 2: IEC 60454-3-4/P-Cc/105/R-Tc.

5 Requirements

5.1 All applicable requirements of IEC 60454-1 shall apply to material furnished under this specification.

5.2 The electrical and other physical properties of products supplied according to this specification shall be within the limits listed in Table 1 when tested in accordance with the methods listed therein.

5.3 Thermal endurance

When required by the purchaser, the manufacturer shall provide evidence that the product has a temperature index of not less than 105 when tested in accordance with Clause 21 of IEC 60454-2. The exposure temperatures shall be 120 °C, 140 °C and 160 °C.

The end-point criteria used shall be:

– for breakdown voltage: 0,5 kV (metal foil electrode), and
– for loss of mass: 20 %.

6 Test methods

All tests shall be conducted in accordance with the appropriate clauses and subclauses of IEC 60454-2.

7 Marking, labelling and packaging

Unless otherwise specified, all marking, labelling and packaging shall be in accordance with the requirements of IEC 60454-1.

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Table 1 – Requirements for all types

Properties	Clause or subclause of IEC 60454-2	Units	Requirements	
			Type 1 non-creped paper	Type 2 creped paper
Thickness	4	mm	Nominal value per manufacturer ±0,025 mm or ±15 % whichever is greater	Nominal value per manufacturer ± 0,025 mm or ±20 % whichever is greater
Width	5	mm	7.2.1 of IEC 60454-1	7.2.1 of IEC 60454-1
Length	6	m	7.3 of IEC 60454-1	7.3 of IEC 60454-1
Electrolytic corrosion:				
– insulation resistance after 24 h at (23 ± 2) °C and (93 ± 2) % relative humidity	7.5	Ω/25 mm width	5×10^6 minimum	5×10^6 minimum
or				
– visual method	7.6	None	Grade shall be at least as good as B 3 (see Table I of IEC 60426)	Grade shall be at least as good as B 3 (see Table I of IEC 60426)
Tensile strength	8	N/10 mm width	50 minimum	20 minimum
Elongation at break	8	%	3,0 minimum	6 minimum
Adhesion to steel	11	N/10 mm width	3,0 minimum	3,0 minimum
Bond separation after thermal treatment	14.2		3 passes	3 passes
Flagging test:	15	mm		
– at curing temperature	Condition per 15.5.2 – 12 mm rod		2 maximum	2 maximum
– at room temperature	Condition per 15.5.1 – 12 mm rod		2 maximum	2 maximum
Electric strength:				
– at room temperature	17	kV/mm	8 minimum	5 minimum
Thermal endurance	21		See 3.3	see 3.3

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ISBN 2-8318-9122-1



ICS 29.035.20

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GENEVA, SWITZERLAND

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