



SLOVENSKI STANDARD SIST EN 60893-3-5:2004/A1:2009

01-november-2009

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i kf^j Ub^Ya `nUY_Y_f] bY`bUa YbY!' !)"XY.`GdYWZ_UW'Y'nUdcgUa YnbY'a UHf]UY!
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Insulating materials - Industrial rigid laminated sheets based on thermosetting resins for electrical purposes - Part 3-5: Specifications for individual materials - Requirements for rigid laminated sheets based on polyester resins (IEC 60893-3-5:2003/A1:2009)

iTeh STANDARD PREVIEW

Isolierstoffe - Tafeln aus technischen Schichtpressstoffen auf der Basis warmhärtender Harze für elektrotechnische Zwecke - Teil 3-5: Bestimmungen für einzelne Werkstoffe - Anforderungen für Tafeln aus Schichtpressstoffen auf der Basis von Polyesterharzen (IEC 60893-3-5:2003/A1:2009)

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Matériaux isolants - Stratifiés industriels rigides en planches à base de résines thermodurcissables à usages électriques - Partie 3-5: Spécifications pour matériaux particuliers - Prescriptions pour stratifiés rigides en planches à base de résine polyester (CEI 60893-3-5:2003/A1:2009)

Ta slovenski standard je istoveten z: EN 60893-3-5:2004/A1:2009

ICS:

29.035.20 Ú|æ cã } ãá Á { ^} ãá [|æã \ ãã Plastics and rubber insulating materials

SIST EN 60893-3-5:2004/A1:2009 en,fr

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60893-3-5/A1

September 2009

ICS 29.035.01

English version

**Insulating materials -
Industrial rigid laminated sheets
based on thermosetting resins for electrical purposes -
Part 3-5: Specifications for individual materials -
Requirements for rigid laminated sheets based on polyester resins
(IEC 60893-3-5:2003/A1:2009)**

Matériaux isolants -
Stratifiés industriels rigides en planches
à base de résines thermodurcissables
à usages électriques -
Partie 3-5: Spécifications
pour matériaux particuliers -
Prescriptions pour stratifiés rigides
en planches à base de résine polyester
(CEI 60893-3-5:2003/A1:2009)

Isolierstoffe -
Tafeln aus technischen
Schichtpressstoffen
auf der Basis warmhärtender Harze
für elektrotechnische Zwecke -
Teil 3-5: Bestimmungen
für einzelne Werkstoffe -
Anforderungen für Tafeln
aus Schichtpressstoffen
auf der Basis von Polyesterharzen
(IEC 60893-3-5:2003/A1:2009)

<https://standards.iteh.ai/catalog/standards/sist/80cc1fb0-204e-4443-b569-7de0e3be9308/sist-en-60893-3-5-2004-a1-2009>

This amendment A1 modifies the European Standard EN 60893-3-5:2004; it was approved by CENELEC on 2009-09-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 15/491/CDV, future amendment 1 to IEC 60893-3-5, prepared by IEC TC 15, Solid electrical insulating materials, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60893-3-5 on 2009-09-01.

This amendment introduces revised limits for CHARPY and IZOD impact strengths for the requirements of all types of rigid laminated sheets based on polyester resins. These revised limits are based on the results of round-robin testing.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2010-06-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2012-09-01

Endorsement notice

The text of amendment 1:2009 to the International Standard IEC 60893-3-5 was approved by CENELEC as an amendment to the European Standard without any modification.

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[SIST EN 60893-3-5:2004/A1:2009](https://standards.iteh.ai/catalog/standards/sist/80cc1fb0-204e-4443-b569-7de0e3be9308/sist-en-60893-3-5-2004-a1-2009)

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IEC 60893-3-5

Edition 2.0 2009-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

**Insulating materials – Industrial rigid laminated sheets based on thermosetting resins for electrical purposes –
Part 3-5: Specifications for individual materials – Requirements for rigid laminated sheets based on polyester resins**

<https://standards.iteh.ai/catalog/standards/sist/80cc1fb0-204e-4443-b569->

**Matériaux isolants – Stratifiés industriels rigides en planches à base de résines thermodurcissables à usages électriques –
Partie 3-5: Spécifications pour matériaux particuliers – Prescriptions pour stratifiés rigides en planches à base de résine polyester**

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ICS 29.035.01

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FOREWORD

This amendment has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This amendment introduces revised limits for CHARPY and IZOD impact strengths for the requirements of all types of rigid laminated sheets based on polyester resins. These revised limits are based on the results of round-robin testing.

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

CDV	Report on voting
15/491/CDV	15/531/RVC

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base 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.

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Table 5

Replace the existing Table 5 with the following new Table 5:

Table 5 – Property requirements

Property	Test method in IEC 60893-2 Subclause	Unit	Minimum or Maximum	Nominal thickness of sheet to which test is applicable mm	Type					Remarks
					UP GM 201	UP GM 202	UP GM 203	UP GM 204	UP GM 205	
Flexural strength	5.1	MPa	Minimum	≥1,5	130	130 ¹⁾	130 ¹⁾	250 ²⁾	250 ²⁾	1) 65 MPa; when measured at 130 °C ± 2 K 2) 125 MPa when measured at 150 °C ± 5 K
Charpy impact strength or Izod impact strength parallel to laminations	5.4.2 or 5.4.3	kJ/m ²	Minimum	≥5	30	30	30	45	45	Conformance with the requirements for either Charpy or Izod test constitutes, in this respect, conformance with the specification.
Electric strength at 90 °C in oil perpendicular to laminations	6.1	kV/mm	Minimum	≤3	See Table 6					
Breakdown voltage at 90 °C in oil parallel to laminations	6.1	kV	Minimum	>3	35	35	35	35	35	
Insulation resistance after immersion in water	6.3	MΩ	Minimum	All	5×10 ²	5×10 ²	5×10 ²	5×10 ²	5×10 ²	
Proof tracking index	6.4	–	Minimum	–	500	500	500	500	500	
Tracking and erosion resistance	6.5	Class	Minimum	–	–	–	IB 2,5	–	–	Method 1 of IEC 60587
Flammability	7.2	Category		3	–	V-0	V-0	–	V-0	The small-scale laboratory test used in this standard for assigning a flammability category is primarily for monitoring consistency of production of laminates. The results so obtained should not in any circumstances be considered as an overall indication of the potential fire hazards presented by these laminates under actual conditions of use.
Water absorption	8.2	mg	Maximum	All	See Table 7					

For all UP GM types, compliance with this standard is not required for the outer 13 mm strip from the edges of the untrimmed sheets.

A dash “–” indicates that there is no requirement for this grade.