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Standards

Irish Standard  
I.S. EN 60893-3-1:2012

Insulating materials - Industrial rigid laminated sheets based on thermosetting resins for electrical purposes -- Part 3-1: Specifications for individual materials - Types of industrial rigid laminated sheets (IEC 60893-3-1:2012 (EQV))

## I.S. EN 60893-3-1:2012

*Incorporating amendments/corrigenda issued since publication:*

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English version

**Insulating materials -  
Industrial rigid laminated sheets based on thermosetting resins for  
electrical purposes -  
Part 3-1: Specifications for individual materials -  
Types of industrial rigid laminated sheets  
(IEC 60893-3-1:2012)**

Matériaux isolants -  
Stratifiés industriels rigides en planches à  
base de résines thermodurcissables à  
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Partie 3-1: Spécifications pour matériaux  
particuliers -  
Types de stratifiés industriels rigides en  
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(CEI 60893-3-1:2012)

Isolierstoffe – Tafeln aus technischen  
Schichtpresstoffen auf der Basis  
warmhärtender Harze für  
elektrotechnische Zwecke – Teil 3-1:  
Bestimmungen für einzelne Werkstoffe –  
Typen von Tafeln aus technischen  
Schichtpresstoffen  
(IEC 60893-3-1:2012)

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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## I.S. EN 60893-3-1:2012

EN 60893-3-1:2012

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### Foreword

The text of document 15/606/CDV, future edition 3 of IEC 60893-3-1, prepared by IEC TC 15 "Solid electrical insulating materials" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60893-3-1:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-05-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-08-28

This document supersedes EN 60893-3-1:2004.

EN 60893-3-1:2012 includes the following significant technical changes with respect to EN 60893-3-1:2004:

- addition of new material types according to EN 60893-3-2.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

### Endorsement notice

The text of the International Standard IEC 60893-3-1:2012 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60893-1	NOTE	Harmonized as EN 60893-1.
IEC 60893-2	NOTE	Harmonized as EN 60893-2.
IEC 60893-3 series	NOTE	Harmonized in EN 60893-3 series.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60893-3-2	-	Insulating materials - Industrial rigid laminated sheets based on thermosetting resins for electrical purposes - Part 3-2: Specifications for individual materials - Requirements for rigid laminated sheets based on epoxy resins	EN 60893-3-2	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**INSULATING MATERIALS –  
INDUSTRIAL RIGID LAMINATED SHEETS  
BASED ON THERMOSETTING RESINS FOR ELECTRICAL PURPOSES –**

**Part 3-1: Specifications for individual materials –  
Types of industrial rigid laminated sheets**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60893-3-1 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This third edition cancels and replaces the second edition, published in 2003 and constitutes a technical revision. This edition includes the following significant technical change with respect to the previous edition:

- a) addition of new material types according to the third edition of IEC 60893-3-2 (in preparation).



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

CDV	Report on voting
15/606/CDV	15/641/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.

A list of all the parts in the IEC 60893 series, under the general title *Insulating materials – Industrial rigid laminated sheets based on thermosetting resins 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 stability 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.

## INTRODUCTION

This part of IEC 60893 is one of a series which deals with industrial rigid laminated sheets based on thermosetting resins for electrical purposes.

The series consists of four parts:

- Part 1: Definitions, designations and general requirements (IEC 60893-1)
- Part 2: Methods of test (IEC 60893-2)
- Part 3: Specifications for individual materials (IEC 60893-3)
- Part 4: Typical values (IEC 60893-4)

IEC 60893-3-1 contains one of the sheets comprising Part 3, as follows:

Sheet 1: Types of industrial rigid laminated sheets.

# INSULATING MATERIALS – INDUSTRIAL RIGID LAMINATED SHEETS BASED ON THERMOSETTING RESINS FOR ELECTRICAL PURPOSES –

## Part 3-1: Specifications for individual materials – Types of industrial rigid laminated sheets

### 1 Scope

This part of IEC 60893 provides requirements for various materials. Their properties are given in subsequent Part 3 specification sheets.

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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60893-3-2, *Insulating materials – Industrial rigid laminated sheets based on thermosetting resins for electrical purposes – Part 3-2: Specifications for individual materials – Requirements for rigid laminated sheets based on epoxy resins*

### 3 Abbreviations

<i>Type of resin</i>	<i>Type of reinforcement</i>
EP Epoxy (epoxide)	CC Woven cotton cloth
MF Melamine	CP Cellulosic paper
PF Phenolic	GC Woven glass cloth
UP Unsaturated polyester	GM Glass mat
SI Silicone	PC Woven polyester fibre cloth
PI Polyimide	WV Wood veneers
	CR Combination reinforcement

NOTE Designation CR (combination reinforcement) is used for those laminates containing more than one type of reinforcement. The actual composition is given in the appropriate Part 3 specification.

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