



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 61212-3-1**

July 2013

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Supersedes EN 61212-3-1:2006

English version

**Insulating materials -  
Industrial rigid round laminated tubes and rods based on thermosetting  
resins for electrical purposes -  
Part 3: Specifications for individual materials -  
Sheet 1: Round laminated rolled tubes  
(IEC 61212-3-1:2013)**

Matériaux isolants -  
Tubes et barres industriels rigides, ronds,  
stratifiés, à base de résines  
thermodurcissables, à usages électriques

-  
Partie 3: Spécifications pour matériaux  
particuliers -

Feuille 1: Tubes ronds stratifiés enroulés  
(CEI 61212-3-1:2013)

Isolierstoffe – Runde Rohre und Stäbe  
aus technischen Schichtpressstoffen auf  
der Basis wärmehärtender Harze für  
elektrotechnische Zwecke – Teil 3:

Bestimmungen für einzelne Werkstoffe –  
Blatt 1: Runde, gewickelte Rohre aus  
technischen Schichtpressstoffen

(IEC 61212-3-1:2013)

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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 15/699/FDIS, future edition 3 of IEC 61212-3-1, prepared by IEC/TC 15 "Solid electrical insulating materials", was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61212-3-1:2013.

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) 2014-03-03
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-06-03

This document supersedes EN 61212-3-1:2006.

EN 61212-3-1:2013 includes the following significant technical changes with respect to EN 61212-3-1:2006:

Details of test for insulation resistance after immersion in water and values for permissible deviation from nominal external diameter of round rolled tubes in the "as rolled and cured" condition are changed.

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.

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The text of the International Standard IEC 61212-3-1:2013 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 61212-3 series	NOTE Harmonized in EN 61212-3 series (not modified).
ISO 472:1999	NOTE Harmonized as EN ISO 472:2001 (not modified).

**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 61212-1	-	Insulating materials - Industrial rigid round laminated tubes and rods based on thermosetting resins for electrical purposes - Part 1: Definitions, designations and general requirements	EN 61212-1	-
IEC 61212-2	2006	Insulating materials - Industrial rigid round laminated tubes and rods based on thermosetting resins for electrical purposes - Part 2: Methods of test	EN 61212-2	2006

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IEC 61212-3-1

Edition 3.0 2013-04

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Insulating materials – Industrial rigid round laminated tubes and rods based on thermosetting resins for electrical purposes –  
Part 3: Specifications for individual materials – Sheet 1: Round laminated rolled tubes**

[SIST EN 61212-3-1:2013](https://standards.iteh.ai/catalog/standards/sist/9f08b249-9f33-4fe0-8fe7-9e719272055a/iec-61212-3-1-2013)

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**Matériaux isolants – Tubes et barres industriels rigides, ronds, stratifiés, à base de résines therm durcissables, à usages électriques –  
Partie 3: Spécifications pour matériaux particuliers – Feuille 1: Tubes ronds stratifiés enroulés**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INSULATING MATERIALS – INDUSTRIAL RIGID ROUND  
LAMINATED TUBES AND RODS BASED ON THERMOSETTING  
RESINS FOR ELECTRICAL PURPOSES –**

**Part 3: Specifications for individual materials –  
Sheet 1: Round laminated rolled tubes**

## FOREWORD

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International Standard IEC 61212-3-1 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

Details of test for insulation resistance after immersion in water and values for permissible deviation from nominal external diameter of round rolled tubes in the "as rolled and cured" condition are changed.



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

FDIS	Report on voting
15/699/FDIS	15/709/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.

A list of all the parts in the IEC 61212 series, under the general title *Insulating materials – Industrial rigid round laminated tubes and rods 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.

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## INTRODUCTION

This part of IEC 61212 is one of a series which deals with industrial rigid round laminated tubes and rods based on thermosetting resins for electrical purposes.

This series consists of three parts:

Part 1: Definitions, designations and general requirements (IEC 61212-1)

Part 2: Methods of test (IEC 61212-2)

Part 3: Specifications for individual materials (IEC 61212-3)

IEC 61212-3-1 contains one of the specification sheets comprising Part 3, as follows:

Sheet 1: Round laminated rolled tubes.

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# INSULATING MATERIALS – INDUSTRIAL RIGID ROUND LAMINATED TUBES AND RODS BASED ON THERMOSETTING RESINS FOR ELECTRICAL PURPOSES –

## Part 3: Specifications for individual materials – Sheet 1: Round laminated rolled tubes

### 1 Scope

This part of IEC 61212 gives requirements for industrial rigid round laminated rolled tubes for electrical purposes, based on different resins and different reinforcements.

Applications and distinguishing properties are given in Table 1.

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:

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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.

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### 2 Normative references

<https://standards.iteh.ai/catalog/standards/sist/9f08b249-9f33-4fe0-8fe7-6e57939cb959/sist-en-61212-3-1-2013>

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IEC 61212-1, *Insulating materials – Industrial rigid round laminated tubes and rods based on thermosetting resins for electrical purposes – Part 1: Definitions, designations and general requirements*

IEC 61212-2:2006, *Insulating materials – Industrial rigid round laminated tubes and rods based on thermosetting resins for electrical purposes – Part 2: Methods of test*

### 3 Terms and definitions

For the purposes of this document, the following term and definition apply.

#### 3.1

##### **round laminated rolled tube**

<thermosets> tube formed by rolling impregnated layers of material on a mandrel between heated pressure rolls, curing in an oven, then removing the mandrel

[SOURCE: ISO 472:1999, modified – The word “round” has been added to the term.]