

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Electric and optical fibre cables – Test methods for non-metallic materials –  
Part 604: Physical tests – Measurement of absence of corrosive components  
in filling compounds**

**Câbles électriques et à fibres optiques – Méthodes d'essai pour les matériaux  
non-métalliques –  
Partie 604: Essais physiques – Mesure de l'absence de composants corrosifs  
dans les matières de remplissage**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRIC AND OPTICAL FIBRE CABLES –  
TEST METHODS FOR NON-METALLIC MATERIALS –****Part 604: Physical tests –  
Measurement of absence of corrosive components in filling compounds**

## FOREWORD

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International Standard IEC 60811-604 has been prepared by IEC technical committee 20: Electric cables.

This Part 604 of IEC 60811 cancels and replaces Clause 8 of IEC 60811-5-1:1990, which is withdrawn. Full details of the replacements are shown in Annex A of IEC 60811-100:2012.

There are no specific technical changes with respect to the previous edition, but see the Foreword to IEC 60811-100:2012.

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

FDIS	Report on voting
20/1313/FDIS	20/1362/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.

This part of IEC 60811 shall be used in conjunction with IEC 60811-100.

A list of all the parts in the IEC 60811 series, published under the general title *Electric and optical fibre cables – Test methods for non-metallic materials*, 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

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- withdrawn,
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## INTRODUCTION

The IEC 60811 series specifies the test methods to be used for testing non-metallic materials of all types of cables. These test methods are intended to be referenced in standards for cable construction and for cable materials.

NOTE 1 Non-metallic materials are typically used for insulating, sheathing, bedding, filling or taping within cables.

NOTE 2 These test methods are accepted as basic and fundamental and have been developed and used over many years principally for the materials in all energy cables. They have also been widely accepted and used for other cables, in particular optical fibre cables, communication and control cables and cables for ships and offshore applications.

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# ELECTRIC AND OPTICAL FIBRE CABLES – TEST METHODS FOR NON-METALLIC MATERIALS –

## Part 604: Physical tests – Measurement of absence of corrosive components in filling compounds

### 1 Scope

This Part 604 of IEC 60811 indicates the effect of the filling compound when in contact with the metallic parts of the cable.

### 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 60811-100:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 100: General*

### 3 Terms and definitions

For the purpose of this document, the terms and definitions given in IEC 60811-100 apply.

### 4 Test method

#### 4.1 General

This part of IEC 60811 shall be used in conjunction with IEC 60811-100.

Unless otherwise specified, tests shall be carried out at room temperature.

This test indicates the effect of the filling compound in contact with the metallic parts of the cable.

#### 4.2 Apparatus

The apparatus comprises:

- A sheet of aluminium strip not less than 0,5 mm thick and of a purity of at least 99,5 %. The sheet shall be cut into pieces 50 mm long and 20 mm wide.
- A sheet of commercial cold rolled copper strip not less than 0,5 mm thick, cut into pieces 50 mm long and 20 mm wide.

NOTE The three grades of copper in common use: toughpitch, high-conductivity copper, phosphorized, deoxidized copper, and oxygen-free, high-conductivity copper, give comparable results.

#### 4.3 Test procedure

Polish each strip on its two faces to obtain a uniform finish free from defects. Wash each strip with diethyl ether and allow it to dry. Use clean forceps for all further handling of the strips.



Approximately 120 g of the filling compound shall be preheated at  $(80 \pm 2) ^\circ\text{C}$  in a tall glass beaker of at least 200 ml capacity. The freshly prepared metal strips, one of aluminium and the other of copper, shall be fully immersed in the compound without touching each other or the sides of the beaker. The beaker shall then be stored for 14 days in an oven at a temperature of  $(80 \pm 2) ^\circ\text{C}$ .

When the specified period of time has elapsed, remove the beaker from the oven and allow it to cool to room temperature. Withdraw the metallic strips, wipe the surplus compound from them and wash them first with petroleum spirit and then with diethyl ether.

#### **4.4 Expression of results**

Examine the surface condition of the strips with normal or corrected vision without magnification to ensure no etching, pitting or discolouration.

The metal strips shall show no corrosion.

#### **5 Test report**

The test report shall be in accordance with that given in IEC 60811-100.

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## Bibliography

IEC 60811-5-1:1990, *Common test methods for insulating and sheathing materials of electric cables – Part 5: Methods specific to filling compounds – Section One – Drop-point – Separation of oil – Lower temperature brittleness – Total acid number – Absence of corrosive components – Permittivity at 23 °C – DC resistivity at 23 °C and 100 °C*  
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