

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Electric cables – Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltages up to and including 450/750 V –
Part 1: General requirements**

**Câbles électriques – Câbles à isolation et gaine thermoplastique sans halogène, à faible dégagement de fumée, de tension assignée au plus égale à 450/750 V –
Partie 1: Exigences générales**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC CABLES – HALOGEN-FREE, LOW SMOKE, THERMOPLASTIC INSULATED AND SHEATHED CABLES OF RATED VOLTAGES UP TO AND INCLUDING 450/750 V –

Part 1: General requirements

FOREWORD

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International Standard IEC 62821-1 has been prepared by IEC technical committee 20: Electric cables.

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

FDIS	Report on voting
20/1555/FDIS	20/1567/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 parts in the IEC 62821 series, published under the general title, *Electric cables – Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltages up to and including 450/750 V*, 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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ELECTRIC CABLES – HALOGEN-FREE, LOW SMOKE, THERMOPLASTIC INSULATED AND SHEATHED CABLES OF RATED VOLTAGES UP TO AND INCLUDING 450/750 V –

Part 1: General requirements

1 Scope

This part of IEC 62821 applies to cables with insulation, and sheath if any, based on halogen-free, thermoplastic compound, and having low emission of smoke and corrosive gases when exposed to fire, of rated voltages U_0/U up to and including 450/750 V used in power installations of nominal voltage not exceeding 450/750 V a.c.

NOTE For some types of flexible cable the term "cord" is used.

The particular types of flexible cables are specified in IEC 62821-3. The code designations of these types of cables are given in Annex A.

The test methods specified in this standard and in IEC 62821-3 are given in IEC 60227-2, IEC 60332-1-2, IEC 60684-2, IEC 60754-1 and IEC 60754-2, and in the relevant parts of IEC 60811, and in IEC 61034-2 and in IEC 62821-2.

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 60050 (all parts), *International Electrotechnical Vocabulary*

IEC 60227-2:1997, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 2: Test methods*

IEC 60228, *Conductors of insulated cables*

IEC 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame*

IEC 60684-2, *Flexible insulating sleeving – Part 2: Methods of test*

IEC 60754-1, *Test on gases evolved during combustion of materials from cables – Part 1: Determination of the halogen acid content*

IEC 60754-2, *Test on gases evolved during combustion of materials from cables – Part 2: Determination of acidity (by pH measurement) and conductivity*

IEC 60811-401, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven*

IEC 60811-501, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 501: Mechanical tests – Tests for determining the mechanical properties of insulating and sheathing compounds*

IEC 60811-502, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 502: Mechanical tests – Shrinkage test for insulations*

IEC 60811-504, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 504: Mechanical tests – Bending tests at low temperature for insulation and sheaths*

IEC 60811-505, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 505: Mechanical tests – Elongation at low temperature for insulations and sheaths*

IEC 60811-508, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 508: Mechanical tests – Pressure test at high temperature for insulation and sheaths*

IEC 61034-2, *Measurement of smoke density of cables burning under defined conditions – Part 2: Test procedure and requirements*

IEC 62440, *Electrical cables with a rated voltage not exceeding 450/750 V – Guide to use.*

IEC 62821-2:2015, *Electric cables – Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltage up to and including 450/750 V – Part 2: Test methods*

IEC 62821-3, *Electric cables – Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltage up to and including 450/750 V – Part 3: Flexible cables*

3 Terms and definitions

For the purposes of this document, the terms and definitions in IEC 60050-461, as well as the following terms and definitions, apply.

3.1 Definitions relating to insulating and sheathing materials

3.1.1

polyolefin based halogen-free compound

compound, in which the polymer is a polyolefin or equivalent synthetic polymer not containing halogens, providing a compound which meets the requirements given in the particular specification

3.1.2

type of compound

category in which a compound is placed according to its properties, as determined by specific tests

Note 1 to entry: The type designation is not directly related to the composition of the compound.

3.2 Definitions relating to tests

3.2.1

type tests

T

tests required to be made before supplying a type of cable covered by this standard on a general commercial basis in order to demonstrate satisfactory performance characteristics to meet the intended application

Note 1 to entry: Type tests are of such a nature that, after they have been made, they need not be repeated unless changes are made in the cable materials or design which might change the performance characteristics.