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Flame retardant and fire resistant wires and cables

阻燃和耐火电线电缆通则

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Content

Foreword

Flame retardant and fire resistant wires and cables, including halogen, halogen-free, low smoke and other products, have been produced and used in China for more than ten years, and play an important role in fire safety. But because there is no international standard as well as no national standard, thus, there is a bit confusion in terms of the product name, model, technical requirement, test method and other aspects, and some are inconsistent with international requirements. This Standard is developed in order to unify the domestic production and use and adapt to the needs of international trade and economic and technological exchanges.

Considering the flame retardance, fire resistance and other requirements that cover almost all of wire and cable products, but to achieve this objective, it generally does not need to change the structure of wire or cable, but to change the materials used. Therefore, it does not use the method to develop product standards one by one, but to develop this general rule, which specifies the requirements on flame retardance, fire resistance and other combustion characteristics which are different from the existing ordinary product standards, recommends the available flame retardant and fire resistant materials and adds relevant marks in the front of the common product model to distinguish it from ordinary products.

In this Standard, all test methods and performance requirements on halogen-free, low smoke, flame retardant and fire resistant characteristics use the following latest international standards:

IEC 60331:1999 Circuit integrity test of cable or optical cable under flame conditions

IEC 60332:2000 Burning test of cable or optical cable under flame conditions

IEC 60754:1997 Test methods for the release of gases in the burning of the materials from cable or optical cable

IEC 61034:1997 Measurement of burning smoke density of cable or optical cable under specified conditions

This General Rule can be used directly as product standard. For the compilation of single product standards, the relevant content must comply with the provisions of this General

General Rule for Flame Retardant and Fire Resistant Wires and Cables

1 Scope

This Standard specifies the models, technical requirements, test methods and acceptance criteria of flame retardant and fire resistant wire and cable, including halogen-containing, halogen free, low smoke and other characteristics. This Standard applies to the halogen, halogen free and low smoke flame retardant and fire resistant wires and cables.

2 Normative References

The articles contained in the following documents have become this standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.

GB/T 17650.2-1998 Test on gases evolved during combustion of materials from cables Part 2: Determination of degree of acidity of gases by measuring pH and conductivity (idt IEC 60754-2:1991)

GB/T 17651.2-1998 Measurement of smoke density of cables burning under defined conditions-- Part 2: Test procedure and requirements (idt IEC61034-2:1997)

GB/T 18380.1-2001 Tests on electric cables under fire conditions-Part 1: Test on a single vertical insulated wire or cable (idt IEC 60332-1:1993)

GB/T 18380.2-2001 Tests on electric cables under fire conditions-Part 2: Test on a single small vertical insulated copper wire or cable (idt IEC 60332-2:1989)

GB/T 18380.3-2001 Tests on electric cables under fire conditions-Part 3: Tests on bunched wires or cables (idt IEC60332-3:1992)

GB/T 19216.21-2003 Tests for electric cables under fire conditions—Circuit integrity—Part 21: Procedures and requirements—Cable of rated voltage up to and including 0.6/1.0 kV (idt IEC 60331-21:1999)

GB/T 19216.23-2003 Tests for electric cables under fire conditions—Circuit integrity—Part 23: Procedures and requirements—Electric data cables (idt IEC

60331-23:1999)

IEC 60332-3-25:2000 Tests on electric cables under fire conditions –Part 3-25Test for vertical flame spread of vertically-mounted bunched wires or cables – Category D

3 Terms and definitions

3.1 Flame retardance

Under specified test conditions, the sample can be burned, after removing the fire source, the flame spread on a sample is only limited in a range and can be with self-extinguishing characteristics, i.e. it has the ability to prevent or delay the spread or occurrence of fire.

3.2 Fire resistance

The ability to continuously run under a specified condition when burning under the prescribed fire and at prescribed time, i.e. the ability to maintain the integrity of the circuit.

3.3 Halogen free

Halogen-free, the corrosive of the combustion products is lower.

3.4 Low smoke

Produce less smoke when burned, namely, the light transmittance (visibility) is higher.

4 Type

4.1 Composition of types

Flame retardant and fire resistant wire and cable model is composed of two parts including the product combustion characteristic code and the relevant wire and cable model, shown in Figure 1.

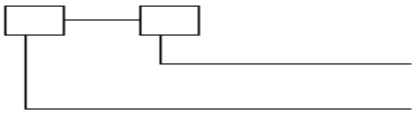

Figure 1 Model composition of flame retardant and fire resistant wires and cables

4.2 Arrangement of combustion characteristics code and sequence

4.2.1 See Table 1 for the combustion characteristics code.

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