

Fire Behavior Test on Cables

Guarantee that electric components comply with regulations



Many fires that nowadays occur have an electrical origin. In many occasions they are linked to overload and shortcircuits in connections, electrical appliances or even in conduits inadequately designed and manufactured. Fire behaviour of cables is an essential element to take into consideration in order to guarantee safety and evacuation of people in case of fire.

Zero risk does not exist, however, its effects might be minimized. For this reason, fire behavior tests are a normative requirement that has been included in rules and legislations of many countries around the world in construction and transport sectors.

OUR METHODOLOGY

FIRE REACTION TESTING

Applus+ Laboratories is fully equipped to carry out the main fire behavior tests defined in the following international standards:

- IEC 60332-1-2 Vertical flame propagation: These tests verify the vertical flame propagation and the procedure for determination of flaming droplets/particles.
- IEC 60332-3-21/22/23/24/25 Fire Propagation: These tests verify the propagation of the fire in a cable when it comes from an external fire. In this case a flame is applied on a set of cables placed in vertical position and with forces ventilation.

After the application of the flame, the cable must be able to limit the propagation reaching self-extinction.

- IEC 61034-2 Smoke Density: This test verifies the opacity of the smoke when cables are burning. A flame with a tray that contains alcohol must be applied to a section of cable placed in a 27 m³ chamber and the light transmittance must be measured.
- IEC 60754-1/2 : Gases evolved during combustion of materials from cables : This test verifies the gases evolved during combustion. After a chemical analysis, its halogen content is determined, as well as the acidity degree (by pH measurement) and conductivity.

FIRE RESISTANCE TESTING

- UL 2196 Fire resistance test on cables: This test verifies the integrity of the cables in case of fire. The purpose is that cables must maintain their function during exposure to fire. The test is then completed with a hose stream test.
- DIN 4102-12 Fire resistance of electric cable systems required to maintain circuit integrity
- EN 1366-11 Fire protective systems for cable systems and associated components.
- EN 50577 Electric cables. Fire resistance test for unprotected electric cables (P classification).

On the other hand, Applus+ laboratories can also carry out tests on cables based on the following standards:

- UL 758 Standard for appliance wiring material
- ISO 6722 Road vehicles. 60 V and 600 V single core cables.
- UL 1581 Reference Standard for Electrical. Wires, Cables, and Flexible Cords.
- NF C 32-070 Test 1(Category C2) Test for vertical flame propagation.

ABOUT APPLUS+ LABORATORIES

Applus+ Laboratories is a world leader in fire testing, inspection and certification. It has more than 18,700 workers distributed in more than 350 offices around the world and operating in more than 70 countries. Our experts study each project to identify the most optimal route until the product certification. This study allows us to identify which models should be chosen as a test sample to maximize the number of certified models with the lowest possible number of trials.

- Study of the project and selection of samples.
- Accredited laboratory tests.
- Product classification.
- Inspection of factory production control system.
- Certification and market access.