

Irregular Electrical Cables

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Abstract:

In emerging economies, it is expected to find products that do not comply with established norms, for example, low-quality production, material, counterfeits, etc., in the market where users are motivated by the low price, especially in times of economic crisis. With regards to products for electrical installations, there is no difference. Notably, several products in the wire and cable market do not comply with established standards. Many manufacturers seek to reduce costs and improve margins using cheaper or less raw materials. This is mainly observed in the reduction of copper used in the conductors, causing overheating, increasing electrical losses, reducing the service life, and ultimately increasing the risk of fires of electrical origin. Brazil has had an independent entity for 30 years, which monitors the market – Qualifio – Brazilian Association for the Quality of Electrical Wires and Cables and SINDICEL - Union of the Electrical Conductor, Wire Drawing and Lamination Industry of the State of São Paulo. Therefore, 136 cable samples with cross-sections of 1.5 mm², 2.5 mm², 4 mm² and 6 mm² were analyzed. These cross-sections were chosen as they represent the most common cables found in electrical installations in Brazil. The data was collected by Qualifio and submitted to tests following Brazilian National Standards Organization - ABNT NBR 6814: Electrical wires and cables - Electrical resistance test. The results showed 68% of the collected wires and cables did not comply with the ABNT. In some cases, the resistance was 300% higher than the upper limit established in the ABNT.

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