Study Shows Robust Fire Safety Standards In Electronics Can Significantly Mitigate Risk Of Household Fire Potential

New comparative analysis demonstrates an increased risk of fire posed by household electronics in markets where brominated flame retardants are not utilized.

FIRE SAFETY STANDARDS

Product fire safety standards help ensure public safety. Fire standards for products like electronics are often referred to as passive fire protection in that ignition resistance is built into the materials by design. This approach helps diminish the risk of a small fire becoming a larger fire.

While fewer fires have occurred in the U.S. since the introduction of more comprehensive fire safety standards in the 1970s, some have questioned whether such fire standards make a difference and are needed. The wide variety in country specific fire codes can dramatically affect the fire safety of home furnishings and electrical equipment, resulting in potentially more or less escape time from structure fires.

WHY WAS THE COMPARATIVE ANALYSIS CONDUCTED?

- To expand on previous assessments conducted by the Southwest Research Institute and reported on in the publication, "Fire Technology," in a research paper titled Combustion Characteristics of Flat Panel Televisions With and Without Fire Retardants in the Casing.
- For this study, the Brazilian Flame Retardant Industry association (ABICHAMA) assessed Brazilian market televisions against US market televisions to collect comparative data that can be used to inform performance evaluation criteria for the safety and protection of consumers of household electronics.

METRICS FOR CHARACTERIZING THE RISK OF HOUSEHOLD FIRE FROM ELECTRONICS

- Duration of material burn after exposure to overvoltage conditions.
- Potential for ignited material to melt and act as a source of ignition to other sources.
- Total heat released and mass lost due to material burning

CONCLUSIONS

- When steps to prevent ignition are not taken, polymeric television casings can act as a fuel source to a potentially larger fire.
- Televisions sold in markets lacking brominated flame retardants were found to be vulnerable to ignition from small sources, including internal sparks or overvoltage.
- Televisions sold in markets that utilize brominated flame retardants in their casings were found to be less likely to become a major source of fire.

Test Burn On TV Without Flame Retardants

1 50W flame application

2 2 minutes into the test

3 4 minutes into the test

4 6 minutes into the test

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