

How and Why Flame Retardants Are Used in Electronics

FLAME RETARDANTS ARE CRITICAL SAFETY TOOLS

DIFFERENT PRODUCTS REQUIRE DIFFERENT CHEMICAL COMPOUNDS

Flame retardants are used to prevent ignition of flammable materials. Not all flame retardants are the same. They are a diverse set of chemicals that vary by functionality and application. They all help to inhibit or suppress fire ignition — no ignition, no fire. Manufacturers include specific flame retardants in their products based on the product's attributes, properties, usage, and potential ignition threats.

The choice of flame retardant is very much dependent on the underlying material, the design use of that material, and product production considerations. There are no universal flame retardants that work across all applications. Different products have to meet different safety and performance standards. For example, flame retardants found in plastics used in laundry dryers are different than those used in computers; those used to protect circuit boards within televisions are different than those found in the plastic casings around television screens.

Regulatory bodies such as the U.S. EPA and CPSC, and standard-setting organizations such as NFPA, ICC, and UL have an important role in testing, approving or overseeing the safe use of flame retardants and the products in which they are used.

ELECTRONICS POSE A UNIQUE FIRE RISK

One of the most important benefits of flame retardants in product design is they can stop small ignition events from turning into larger fires. Electronic products are unique because they have a potential ignition source generated by the essential components of the product — circuit boards, transformers, batteries, connectors, and more. Batteries can overheat, and circuit boards and other device components carry electric currents; therefore, electronic products present a higher risk of flammability than non-electronic products. Flame retardants help to reduce the risk of fire and are essential for ensuring manufacturers meet fire safety standards.

THE IMPORTANCE OF FLAME RETARDED PLASTICS

Electronic device manufacturers must balance the need to meet consumer demand for smaller, lighter, and more powerful electronics with the need to ensure that those devices meet safety standards. Manufacturers use plastics to ensure device performance goals, and plastic casings serve as an enclosure that protects from fire and shock risk. If left untreated, most plastics are flammable, so flame retardants serve as a critical line of defense in case of fire.

