

SUPDET 2012

ABSTRACT

Packaging Influence on Sprinkler Protection for High Challenge Commodities

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March 8, 2012

Procter & Gamble Global Fire Protection has historically conducted Hazard Index Testing and has built a library of results as a matter of corporate economics and the advancement of fire protection solutions. Initially, a full Commodity Classification test series and corresponding full scale test of Group A plastic was conducted and is used as a baseline for as-built protection schemes. Conducting single Calorimeter tests (Index Tests) using the same criteria provides useful, correlating Index information to know by test what it would take to provide control or suppression using water only.

In this case study, a commodity hazard index fire test was conducted beneath a fire products collector to investigate the effects of an applied water density on retail-packaged Braun shaver kits. The shaver kits contained a shaver, charger, and an SD Alcohol 40-B cleaning cartridge. The product was shrink wrapped in plastic, in cardboard cartons with a significant amount of both expanded and nonexpanded plastics and stacked on wood pallets positioned on a double row rack. The sole purpose of this research program was to conduct a commodity hazard index investigation to develop data relative to the heat release characteristics of the burning items with water application.

In this test, 8 pallets of Braun shaver kits, each containing 40 cartons/80 shavers and 80 - 5.7 fl. oz. alcohol cartridges (28.5 gallons total) were arranged in a 2 long by 2 wide by 2 high rack array. Six inch nominal longitudinal and transverse flue spaces were incorporated into the stacking of the test arrangement.

The relative heat release rates of isopropyl alcohol in glass jars, cartoned unexpanded Group A plastic standardized commodity and 2 oz. hand sanitizer gels in plastic bottles were compared against the Braun products, using identical water application criteria.