

The logo consists of the letters 'S' and 'T' in a bold, outlined, sans-serif font. The 'S' is on the left and the 'T' is on the right, both with a thick black outline. A thick black horizontal bar is positioned below the letters.

 Stabilization Technologies LLC

New Developments in Flame Retardant Nonwoven

Thermoplastic Polyethylene Terephthalate (PET)

Thermoplastic Polyester fibers are used extensively in automotive interior, construction and industrial applications, upholstery, house wares among the many end uses.

The need for consistent and reproducible flame retardant polyesters has never been more urgent. However, historically over the last fifteen years the nature of flame retardants used by the industry have changed dramatically. Many of the flame retardants used adversely affected the short term and long term mechanical properties. Others created major smoking problems during spinning operations while others broke down during processing. The random performance of many of these additives created opportunities by various vendors to introduce reactive additives added during the polymerization of thermoplastic polyesters. In all cases the

level of flame retardant added ranged from 5 to 7% to achieve performance. Since most systems were provided in masterbatch form the fiber producer could not confirm the actual final levels in the needle punch nonwoven and therefore experienced random performance. Over time cost and performance changed and the requirements for tougher and cheaper performing additives dominated the market globally. Pressure on cost and passing more stringent flame retardant specifications added to the demands by the market.

Today the requirements for a flame retardant nonwoven include a product that does not adversely affect the color of natural fiber, non smoking during production of the fiber, no adverse affects on short and long term properties, no adverse affect on UV durability, no affect on the coloration of the fiber and of course passing new standards in a global market.

Today two test methods prevail. The NFPA-701 vertical burn and the more difficult FAA standard Vertical Flammability Test in Accordance with FAR 25.853a. Both test call for self extinguishing flame out in less than two seconds. No drip and no smoking during testing. Burn length, Burn time and Dripping Time in the FAA standard are less than 8 inches, 15 seconds and 5 seconds respectively.

After many years of R and D development and extensive analytical testing of both the active additives and those master batches produced, the final product produced by the textile producer of the Polyester fiber and nonwoven we have finally determined those factors that affect performance. In addition those parameters which allow lower levels of active in the nonwoven and to achieve a cost benefit performance for the industry that makes the product competitive in the Global market today.

Today a flame retardant system finally exists that can be used at less than 3% by weight final in the polyester fiber that passes both FAA and NFPA-701 vertical burn that does not smoke, no drip and provides instantaneous flame out. The product has no adverse affect on short or long term physical properties, no adverse affect on UV durability, no discoloration, no antagonism with colorants used in polyesters and no restrictions on use for the majority of applications for a flame retardant polyester today in a Global market.

The price and economics and cost benefit performance is higher and more consistent than any flame retardant system in use today. The product is sold under the trade name Cel Span 789 from Phoenix Plastics Inc. Conroe, Texas.

The technology for producing this product is the result of over five years of extensive testing Globally at textile producers and real world testing. The results are reproducible and with Phoenix Analytical Testing Services the product is tested and certified as to its activity and concentration prior to being shipped to the customer.

Contact Information: Phoenix Plastics ((936) 760-2311

Joe Webster

Stabilization Technologies LLC