



The Regulation of Bedclothing **Materials for Flame Retardancy –** **A Stakeholders Perspective**

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March 18, 2009

NIST Barrier Fabric Workshop

Scope of Presentation

My presentation will focus on the impact of flammability regulations on the producers, suppliers and retailers of bedclothing products. Although I do not intend to delve into the Draft TB604 standard in significant detail, I will provide comments based on the approximately six years that I served as a Task Force member. This group of industry members volunteered to assist the CA BHFTI in drafting the TB604 standard. I will also limit my comments to what we might call the “technical impact” on the producers of these materials. There has been very little if any economic impact studies that I am aware of that have been developed to date on this bedclothing standard.

Market Overview

The supply side of the market for bedclothing or bedcovering products has changed significantly over the past five years in my opinion. Many of the traditional main line suppliers of such things as comforters, pillows and mattress pads, have changed their roles and in some cases disappeared. In their place we see a greater amount of activity based in part or whole on imported products. There are also a number of products that are partially manufactured off-shore and completed here in North America. All this has served to make the matter of developing an effective and enforceable FR standard a greater challenge than it was for mattresses for example which still 90+ % are made in North America.

History

In California Assembly Bill 603 was enacted in 2001 to require that mattresses and foundations be open flame resistant. The California Bureau of Home Furnishings and Thermal Insulation (BHFTI) took the charge to write an FR standard first for mattresses (Technical Bulletin 603) and secondly for bedclothing (Technical Bulletin 604) if the bureau determined that bedclothing contributed significantly to mattress fires. TB603 was enforced as of 1 January 05 and subsequently superseded by 16 CFR 1633, enforced from 1 July 07. Meanwhile Draft TB604, having gone through 2 or 3 revisions and a Precision & Bias Study, is now in the hands of the Department of Consumer Affairs, awaiting a final determination and return to the BHFTI for the start of the Rule Making Process. It is not known when the measure will be returned to the BHFTI for its final phase of promulgation which includes public hearings, public comments, revisions, etc.

Approaches to Compliance

The TB604 Task Force members took a very active role in supporting the BHFTI with the development of suitable materials that could meet the draft standards while to the greatest extent possible, staying within the confines of design and economics. The FR batting approach proved to be a preferred system by the comforter producers for example. This approach allowed them to retain much of their products aesthetics and work within their manufacturing parameters, while have the least painful impact on cost. Conversely, a FR ticking or cover fabric approach to a comforter proved to be both too costly and restraining from a styling standpoint. An FR nonwoven structure could prove to be of benefit in this area.

Approaches to Compliance...

- Pillows can also be protected by the use of either a rolled FR batting or a blended/blown FR filling. Through our company's prototyping work, we have had good results in developing both knit and woven pillow shell barriers that will allow compliance while maintaining good aesthetics and relatively low cost. As pillows are perhaps the toughest of the items to make FR from an aesthetics standpoint, significant care has to be devoted to duplicating its non-FR counterpart. I have referred to this as the "invisibility" of the FR barrier in that the user should not be able to detect the presence of such barriers.
- Mattress Pads will also benefit from an FR batting approach, but we in fact find this part of the standard to be the most challenging due to its' thinness and cost constraints. This area may perhaps benefit from a nonwoven FR barrier structure of low cost.
- Each of the above 3 product areas, comforters, pillows, and mattress pads are addressed in Sections 1, 2 and 3 of Draft TB604 and each presents a different set of challenges. Our experience has shown however that FR barrier systems already exist either in practice (16 CFR 1633) or in a prototype stage (Draft TB604) that will achieve compliance.

Raw Materials...

Every FR system for compliance with either 16 CFR 1633 or Draft TB604 is essentially a function of the raw materials that are incorporated into the product. Currently, and prior to any FR standards, polyester fiber has been the raw material of choice for its performance, aesthetics, cost, and processability characteristics. This fact is further enhanced by the introduction of down alternative polyester fiber products, as well as creative design of the pillow itself. Although my company, Kaneka Corporation, is not a producer of polyester fiber (we make modacrylic), we continue to emphasize the importance of polyester fiber in the bedclothing market.

Raw Materials...

- All know however that polyester is a fiber that melts when exposed to flame and is a poor candidate as an FR material. Our studies have also shown that FR polyester may not be a good candidate, as this product relies on a “melt-drip” effect to remove the source of heat from the flame. This mandates a vertical configuration to optimize the performance of FR polyester. Draft TB604 testing is a performed in a horizontal configuration.
- The challenge in my opinion is to find the suitable FR fiber material to blend at the appropriate level with non-FR polyester to achieve compliance with Draft TB604. Given that polyester will remain as a significant component of the market going forward, there should be no issues with capacity.
- Concerning textile based raw materials, we have had success blending an FR fiber with non FR treated cotton to achieve compliance with Draft TB604 using both knits and wovens.

Economics

As noted earlier, I do not believe that there has been an economic impact study performed on Draft TB604. Please correct me if I am wrong, as I am not aware of the inner workings of the CA Department of Consumer Affairs. I am therefore going to restrict my comments in this area to that of a general nature. I've heard that it could cost up to \$1.50 per queen size comforter to make it FR. It could cost \$0.75 - \$1.00/unit to make a pillow FR. I frankly don't know the estimated cost of making a mattress pad compliant, but due to the disposable nature of this product, we can expect that it will be very low.

Inherent Versus Topical Approaches to FR Compliance

- Firstly, as a fiber producer ourselves, we would like to put forth our technical opinion of how an inherently flame retardant fiber is defined. It is a production process whereby the flame retardant ingredients are added to the mix prior to fiber extrusion when the polymer is still in its liquid state. Application of flame retardant ingredients after the extrusion process when the fiber begins to solidify must be defined as a topical treatment, regardless of its method of adhesion to the fiber and resulting durability to washing, wear, or FR properties.
- Draft TB604 states that if a bedclothing product is to achieve Draft TB604 compliance via the use of a topically applied FR treatment, it must be subjected to five machine washings before testing. The standard does not require this of inherent FR products. Based on conversations I have with retailers, topical FR solutions used for compliance will not be favored, due to the potential for their washing out or leeching out during use. As the user will be subjected to many hours of very intimate exposure to such as a pillow, it can be easily understood why topical FR treatments are not likely to be given first consideration by those responsible for selling such products

Toxicity

As an extension of the above item, Inherent versus Topical Approaches to FR Compliance, there is considerable discussion taking place in California regarding the matter of toxicity and FR chemicals. Regardless of the system that will be used for compliance with Draft TB604 or its federal counterpart, we can expect that more attention will be paid to the matter of health and safety in FR bedclothing products. The inclusion of Health Risk Assessments for FR products to be used for bedclothing is certainly within the realm of reason and possibility.

The Retailers' Expectations

I have had the opportunity to visit and speak with most of the major retailers Compliance Officers and maintain a close rapport with a number of them. I am pleased to advise that the majority of them have responded in a positive manner if such a bedclothing standard is to become reality. They are of course not willing to pay any more for such compliance, but we have all heard this before. Conversely, they demand a level playing field across the industry and have voiced concern over the possibility of individual state FR standards for bedclothing materials.

Prognosis

- If our respected colleagues at the CA BHFTI were to get the green light from the CA DCA's Office of Administrative Law within the next month or so, we could perhaps see TB604 effective early in 2010 and enforced early in 2011. The retailers with whom I have spoken could live with this timetable, but would probably have FR bedclothing product in their stores by mid-2010. Not really that much time.
- In conclusion I have felt for the approximately 6 years that I have been working as an industry Task Force member with the CA BHFTI on Draft TB604, that this is a workable and effective sister standard to the already in effect CPSC 16 CFR 1633. I should also emphasize that according to our internal tests that have experimentally combined the 16 CFR 1633 and Draft TB604 standards, an effective FR bedclothing standard is absolutely essential to the overall safety of the residential bedroom.



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