



UNITED STATES  
 CONSUMER PRODUCT SAFETY COMMISSION  
 WASHINGTON, DC 20207

**BALLOT VOTE SHEET**

Date: **NOV 30 2006**

TO : The Commission  
 Todd Stevenson, Secretary

THROUGH: Patricia Semple, Executive Director

FROM : Page C. Faulk, General Counsel  
 Jeffrey R. Williams, Assistant General Counsel  
 Patricia M. Pollitzer, Attorney

SUBJECT : Staff's Recommendation for Notice of Proposed Rulemaking to Amend the  
 Flammability Standard for Clothing Textiles

Ballot Vote Due: DEC - 8 2006

Attached is a briefing package from the staff recommending that the Commission direct the Office of General Counsel ("OGC") to prepare a notice of proposed rulemaking ("NPR") to amend the Flammability Standard for Clothing Textiles, 16 C.F.R. part 1610, in accordance with the suggestions discussed in the staff's briefing package.

Please indicate your vote on the following options.

I. Direct OGC to prepare an NPR for the Commission's approval:

\_\_\_\_\_  
 Signature

\_\_\_\_\_  
 Date

II. Direct OGC to prepare a Federal Register notice terminating the rulemaking.

\_\_\_\_\_  
 Signature

\_\_\_\_\_  
 Date

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 Initial PS Date 11/30/06

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III. Take other action (please specify):

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\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



**PROJECT TO UPDATE/AMEND THE  
FLAMMABILITY STANDARD  
FOR CLOTHING TEXTILES  
16 C.F.R. PART 1610  
BRIEFING PACKAGE**

For further information contact:

Patricia K. Adair, Project Manager  
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Consumer Product Safety Commission  
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**ACKNOWLEDGEMENTS**  
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## EXECUTIVE SUMMARY

Congress passed the Flammable Fabrics Act (FFA) of 1953 to prohibit the introduction or movement into commerce of highly flammable wearing apparel and fabrics. The FFA incorporated a voluntary standard, "Flammability of Clothing Textiles, Commercial Standard 191-53." The standard provides a test method and classification system for the flammability of textiles for apparel use. Codified in the Code of Federal Regulations at 16 C.F.R. Part 1610 as the *Standard for the Flammability of Clothing Textiles*, the standard establishes three classes of flammability, sets requirements for clothing textiles, and prohibits the manufacture, distribution and sale of dangerously flammable textiles for use in clothing.

The original standard was issued over 50 years ago. Consumer garment care practices have changed significantly and modern equipment has been developed since the standard became effective in the 1950's. In order to reflect current technologies, safe laboratory practices and modern consumer care practices the standard requires updating.

In September 2002 the Commission issued an advance notice of proposed rulemaking (ANPR) to update the *Standard for the Flammability of Clothing Textiles* and solicit comments on the risk of injury, the regulatory alternatives under consideration, and other possible alternatives. The scope of the ANPR was limited to considering changes to the standard to better reflect current consumer practices, modernized testing equipment, and clarifying several aspects of the standard.

The ANPR identified several substantive problems with large portions of the standard that the staff believes should be updated and revised. Specifically, the dry-cleaning and laundering test methods are outdated, in fact, the dry cleaning procedure is no longer allowed under EPA regulations. The staff has some indications that certain fabrics change and may become dangerously flammable after washing in an automatic washing machine and tumble drying. Clarification to the test procedure is critical because an incorrectly followed test procedure undermines the efficacy of the standard.

In response to the ANPR, commenters generally agreed that the *Standard for the Flammability of Clothing Textiles* needs to be updated to include modern testing apparatus, as well as refurbishing practices which reflect current consumer practices. Most, but not all, commenters suggested that only technical changes are needed. Some commenters suggested changes to the standard that would go beyond the scope of this project; these included changing the ignition time, flame orientation, classification criteria and requiring additional testing and new labeling requirements.

The staff's suggested amendments do not redefine the standard's acceptance criteria. The amendments are not expected to have any significant economic impact on small businesses or have any potential to produce significant environmental impacts. The staff recommends that the Commission publish a notice of proposed rulemaking (NPR) to solicit public comment on the staff's suggested amendments for updating the *Standard for the Flammability of Clothing Textiles*, 16 C.F.R. Part 1610.



UNITED STATES  
CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, DC 20207

Memorandum

Date: NOV 30 2006

TO : The Commission  
Todd Stevenson, Secretary

THROUGH: Page C. Faulk, General Counsel *PCF*  
Patsy Semple, Executive Director *PS*  
John G. Mullen, Director, Office of Compliance and Field Operations *JGM*

FROM : Jacqueline Elder, Assistant Executive Director  
Office of Hazard Identification and Reduction  
Patricia K. Adair, Project Manager *(PKA)*  
Directorate for Engineering Sciences

SUBJECT : Draft Notice of Proposed Rulemaking to amend the *Standard for the Flammability of Clothing Textiles*, 16 C.F.R. Part 1610

I. INTRODUCTION

On September 12, 2002, the Commission issued an advance notice of proposed rulemaking (ANPR), to amend and update 16 C.F.R. Part 1610 *Standard for the Flammability of Clothing Textiles*.<sup>1</sup> The standard, originally issued in 1953, has become outdated in several respects. The Commission solicited comments on changes that would enable the standard to better reflect current consumer practices and technologies as well as reorganization in order to clarify several aspects of the standard. The update does not extend to redefining the standards acceptance criteria, which are still considered reasonable for a minimum standard of performance.

II. BACKGROUND

In 1953 Congress enacted the Flammable Fabrics Act (FFA) of 1953 (Public Law 83-88, 67 Stat. 111). As enacted in 1953 and amended in 1954, the FFA prohibits the importation, manufacture for sale, or the sale in commerce, of any article of wearing apparel that is highly flammable. The FFA of 1953 specified that a test, first published by the Department of Commerce as a voluntary commercial standard, called "Flammability of Clothing Textiles, Commercial Standard (CS) 191-53," shall be used to determine if fabric or clothing is "so highly flammable as to be dangerous when worn by individuals." In 1973 the authority to issue and amend flammability standards under the FFA was transferred to the Consumer Product Safety Commission. In 1975

<sup>1</sup> 67 *Federal Register* 57771, "16 C.F.R. Part 1610 Standard for the Flammability of Clothing Textiles: Advance Notice of Proposed Rulemaking", September 12, 2002.

NOTE: This document has not been reviewed or accepted by the Commission.

Initial *PKA* Date *11/30/06*

12/1/06  
ACCEPTED BY: *[Signature]*

the Commission published the FFA of 1953 as 16 C.F.R. Part 1609 and the *Standard for the Flammability of Clothing Textiles* was promulgated at 16 C.F.R. Part 1610.

Fatalities where clothing was the first item ignited declined from 311 fatalities in 1980 to 110 fatalities in 2003, the most recent year of available data. An average of 122 clothing fire-related fatalities occurred annually during 1999-2003. Population fatality rates increased with age. In addition, an estimated 3,822 non-fatal injuries were treated in hospital emergency departments annually (2000-2004). Among these non-fatal injuries, 25 percent were serious enough to require admission to a hospital (compared to 5% for all consumer products). (TAB A).

The purpose of the clothing textiles standard is to eliminate from the marketplace dangerously flammable clothing textiles, such as certain lightweight or brushed fabrics, thereby reducing the danger of injury or death from burning apparel. The standard provides national requirements for testing and rating the flammability of textiles for apparel use. It establishes three classes of flammability, sets requirements for clothing textiles, and prohibits the use of textiles unsuitable for clothing. Flammability classes are based on measures of burn time and flame intensity. These measures are made before and after refurbishing (dry cleaning and laundering).

### III. RELEVANT VOLUNTARY STANDARDS

The staff previously reviewed relevant voluntary national and international standards. The staff found three relevant standards with modern dry cleaning methods and/or laundering methods. This information was summarized in the ANPR. In preparing the amendments to the clothing textiles standard, staff found ASTM D1230 *Standard Test Method for Flammability of Apparel Textiles* to be similar to 16 C.F.R. Part 1610 in methods of testing but significantly different in refurbishing procedures, terminology and criteria. Some aspects of this voluntary standard are used in the staff's suggested amendments.

### IV. DISCUSSION

The original standard was issued over 50 years ago and has been criticized by manufacturers and testing laboratories as being poorly organized and difficult to follow. Consumer garment care practices have changed significantly over the past 50 years. New refurbishing technologies and products have emerged and have been commercialized. In order to reflect these changes, the staff recommends rewriting and reorganizing large portions of Subpart A *The Standard*. Included in the staff's suggested amendments is language for the requirements found in Subpart B *Rules and Regulations* and interpretive language from Subpart C *Interpretations and Policies*; including modern refurbishing methods; adding a description, with figures, of the test cabinet; and including burn codes.

Terms and definitions. Over the years there has been confusion over the meaning of certain terms and a lack of defined terminology in the standard. In particular, the meaning of the terms "base burn" and "surface flash" have caused confusion for interpreting and reporting test results for raised surface textile fabrics. These terms are defined in the staff's suggested amendments.



In addition, staff suggests amending the standard to add several other relevant terms and definitions. These terms include *burn time, dry cleaning, flammability, flame, ignition, interlining, laundering, long dimension, plain surface textile fabric, raised surface textile fabric, refurbishing, sample, specimen, stop thread supply* and *surface flash*.

Apparatus and materials. The original test chamber is no longer available for purchase. The flammability test chamber required by the standard uses a mechanical timing mechanism (blueprints are no longer available). Industry and independent testing laboratories are currently using more modern flammability test chambers that incorporate electro-mechanical components to apply the ignition flame and measure the burn time. A variety of these testers are available for purchase from a number of manufacturers and currently in use by testing laboratories. They are different than the required cabinet in many respects. *Subpart B – Rules and Regulations* authorizes the use of alternate (such as modern) equipment for guaranty purposes, provided that the alternate produces results for a particular fabric that are as stringent as, or more stringent than, the results obtained with the apparatus described in the standard.

The staff's suggested amendments provide a description, with diagrams, of the critical parameters of a modern flammability test apparatus. Work done by the CPSC staff in 1982 comparing the flame impingement time of the electrical test chamber to the mechanical timing device demonstrated that the electrical test chamber readings were more consistent than the manual test chamber.<sup>2</sup> To reflect modern technology, use of an electro-mechanical device to apply the ignition flame and record the fabric burn time are included the staff's suggested amendments.

Staff also suggests amending the standard to organize the equipment and materials needed to conduct the flammability test into a logical sequence, and to provide a concise description for each piece of equipment and material required.

Refurbishing methods. The standard requires fabrics to be refurbished (dry cleaned and laundered) one time before testing. The purpose of the refurbishing requirement is to remove any non-durable solvent or water soluble treatment present on the fabric; it is not meant to replicate how the garment is to be used or cared for by the consumer over its useful life.

For several years, industry and independent laboratories have been allowed to defer to the refurbishing methods in ASTM D1230 *Standard Test Method for Flammability of Apparel Textiles* for compliance purposes. This standard uses modern home laundering and dry cleaning procedures for fabrics to be tested. An analysis of the test data from an ASTM inter-laboratory round robin indicates that, for the fabrics subjected to Option B of ASTM D1230, this procedure is as stringent as, or more stringent than, the refurbishing procedure in 16 C.F.R. Part 1610.<sup>3</sup>

- Dry cleaning: The dry cleaning method in 16 C.F.R. 1610 specifies perchloroethylene in an open vessel. This method is now prohibited by the Environmental Protection Agency

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<sup>2</sup> CPSC Memorandum from Gail Stafford, ESEL, to Robert Poth, CARM "ESEL's Use of Electric 16 CFR 1610 Test Chamber" dated March 5, 1982.

<sup>3</sup> Letter to Don Knodel, Chairman of ASTM subcommittee D13.52 Flammability, from Linda Fansler, ES, June 1993.

(EPA) (TAB B). On occasion, the staff has used the Option B dry cleaning procedure specified in *ASTM D1230 Standard Test Method for Flammability of Apparel Textiles*.<sup>4</sup> This procedure uses perchloroethylene in any closed environment commercial dry cleaning machine for one cycle. This was found by ASTM Committee D13.52 to be as stringent as the procedure specified in 16 C.F.R. Part 1610.<sup>5</sup> The ASTM standard, however, lacks specifications for the solvent type, detergent class, cleaning and extraction time, drying time and temperature, and cool down/deodorization time that commercial dry cleaners should use for the test procedure. Because the use of varied parameters could result in differences in test results, the staff suggests amending the standard to provide additional specific conditions for the dry cleaning operation.

The staff suggests amending the standard to include specifying a “normal” commercial dry cleaning method using the solvent perchloroethylene in a commercial (closed system) dry cleaning machine. Approximately 70% of U.S. drycleaners use perchloroethylene.<sup>6</sup> Although perchloroethylene is considered to be “toxic” by the staff based on the staff’s finding that it is a probable human carcinogen, it is not considered to be a “hazardous substance” based on its current use pattern. In dry cleaning industries, perchloroethylene is utilized within an enclosed system that minimizes the danger to the environment, human life or health. The use of perchloroethylene in a dry cleaning system that meets EPA specifications should minimize any potential adverse health effects since exposure to perchloroethylene during the cleaning process or from dry-cleaned samples should be *de minimus*. (TAB B)

The staff’s suggested amendments include specific parameters for a “normal” commercial dry cleaning cycle, including detergent class, cleaning and extraction time, drying time and temperature and cool down/deoderization time. These parameters were suggested to the staff by the International Fabricare Institute (IFI).<sup>7</sup> IFI is the international trade association for the professional garment care industry.

- Laundering: After dry cleaning, 16 C.F.R. Part 1610 requires the specimens to be hand washed with neutral chip soap and line-dried. Consumer care practices, automatic home laundering technology and detergents have changed significantly since the standard was written. The staff’s suggested amendments include an updated home laundering procedure based upon the American Association of Textile Chemists and Colorists’ standard, AATCC 124-2001 *Appearance of Fabrics After Repeated Home Laundering*, including non-phosphate Standard Reference Detergent 1993. The earlier version of this test method (AATCC 124-1996) was incorporated in other FFA standards in 2000.<sup>8</sup> The laundering and tumble drying conditions in these two versions are identical. The staff suggests amending the standard to include automatic home washing and tumble drying technologies that were not widely available to consumers when the standard was written.

<sup>4</sup> ASTM D1230-94 *Standard Test Method for Flammability of Apparel Textiles*, section 9.2.1.6 Option B; ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA.

<sup>5</sup> Knodel, 1993.

<sup>6</sup> Meeting log of conference call with Mary Scalco and Brian Johnson, International Fabricare Institute, and CPSC staff, August 2, 2005.

<sup>7</sup> Letter to Patty Adair, CPSC, from Brian Johnson, International Fabricare Institute, August 2, 2005.

<sup>8</sup> 65 *Federal Register* 12935; 65 *Federal Register* 12929; 65 *Federal Register* 12924. March 10, 2000.

CPSC staff testing indicates that some raised fiber surface textiles perform differently after the machine wash/tumble dry method than after the procedure required by the current standard.<sup>9</sup> Requiring automatic machine washing and tumble drying will ensure a more realistic measure of modern consumer care practices for these fabrics.

The staff is aware that a variety of laundering additives are now available to consumers, including liquid fabric softeners (used in automatic washing machines) and anti-static dryer sheets (used in tumble dryers). There is concern, but limited available information, that fabric softeners may affect the flammability characteristics of some fabrics. Staff believes that fabric construction is a more prominent factor in textile flammability than the use of fabric softeners. In addition, there is no reference fabric softener that could be specified in a standard. AATCC Technical Committee RA 88 on Home Laundering Technology is working on the development of a standard reference fabric softener and expects its work to be completed in three to four years.<sup>10</sup> For these reasons, the staff's suggested amendments do not include a fabric softener in the laundering procedure.

Test procedures. Over the years, many questions have been raised by manufacturers and independent testing laboratories regarding the test procedures and materials or equipment required by the standard. Inaccurate sample preparation and conditioning undermine the efficacy of the standard. In the ANPR, the staff identified confusing sections of the test procedure, including the directions for selecting the surface or direction of the fabric to be tested, and the directions for determining when to test five additional specimens.

The staff's suggested amendments include a reorganization of the test procedure in a logical step-by-step fashion to clarify the directions for selecting the surface or direction of the fabric to be tested, how to determine when it is necessary to test five additional specimens, as well as how to conduct the flammability test.

There were concerns by testing laboratories about the potency of the desiccant, anhydrous calcium chloride, used in fabric specimen conditioning before testing. Staff suggests amending the standard to specify silica gel as the desiccant because it is generally recognized as an effective, reliable desiccant. Other FFA standards (16 C.F.R. Parts 1615, 1616, 1630 and 1631) specify silica gel as the preferred desiccant. CPSC Laboratory Sciences staff has been using silica gel as the desiccant for all FFA testing since 1973. (TAB C)

Test result interpretation and reporting. The classification of textile fabric flammability is based on laboratory test results. The classification of a plain surface textile fabric is determined by average burn time and is usually straightforward. However, burning characteristics of raised surface textile fabrics are much more complex. Raised surface textile fabrics are classified not only by fabric burn times, but also by the intensity of the surface burning. Intensity is defined by the visual observation of a "base burn" (base fabric ignition or fusing). The standard does not

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<sup>9</sup> Memorandum to L. James Sharman, Fire Program Officer, OPM, from Patricia Fairall, ESMT and Mary Toro, ESMT, January 29, 1985.

<sup>10</sup> Personal communication between Patricia K. Adair, ES and Dr. Nodie Washington, Procter and Gamble, Chair of AATCC Research Committee RA88 on Home Laundering Technology.

provide burn codes to report test results consistently. If test results and observations are reported incorrectly or misinterpreted, a raised surface textile fabric can be incorrectly classified.

The staff will clarify the instructions for calculating burn times and establishing the occurrence of a base burn. By defining the terms “base burn” and “surface flash” the staff’s suggested amendments will provide further clarification for the reporting of test results for raised surface textile fabrics.

CPSC staff refined test result codes developed by the Federal Trade Commission many years ago for both plain surface and raised surface textile fabrics. These codes are found in the CPSC’s laboratory test manual.<sup>11</sup> Staff suggests amending the standard to include these burn codes. Uniform result codes will facilitate reporting accuracy and consistency, understanding of flammability performance and resolution of test result differences among laboratories.

Clarification and amendment of Subpart B – Rules and Regulations. Currently, Subpart B includes numerous provisions issued to clarify the test procedures, test equipment, test criteria and interpretation of test results. Having these provisions in Subpart B, rather than in the standard, makes the obligations for compliance to the standard difficult to understand. As part of the project to update the standard, the staff suggests amendments to bring language forward from Subpart B into Subpart A. Staff suggests amending Subpart B *Rules and Regulations* as follows:

- Delete portions of 1610.32 *General requirements*, which provide an explanation of how to compute results to determine classification from Subpart B, and add this information to Subpart A.
- §1610.37(3)(d) *Exemptions*. Delete the language on exemptions from Subpart B and move it into Subpart A. Comments were sought at the ANPR stage on changes to the exemptions. No data was provided by commenters to support changes to the exemptions.

Clarification and amendment of Subpart C – Interpretations and Policies. To provide further clarification, staff suggests amendments to move the interpretative language from Subpart C on the positioning of the stop thread and clarification of how to brush raised surface textile fabrics into Subpart A.

## V. ANPR COMMENTS AND ANALYSIS

The Commission’s ANPR to revise and update the *Standard for the Flammability of Clothing Textiles* was published in the *Federal Register* on September 12, 2002. During the comment period, the CPSC received a total of 18 written comments from businesses, trade associations and interested parties representing various segments of the fiber, textile and apparel industries as well as academic institutions and fire service organizations.

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<sup>11</sup> U.S. CPSC Engineering Laboratory Test Manual for Compliance Testing of General Wearing Apparel, May 1981, pp. 15-16.

Commenters generally agreed that the *Standard for the Flammability of Clothing Textiles* needs to be updated and reorganized. Most, but not all, commenters suggested that only technical changes are needed. The major issues received through the comments on the ANPR have been dealt with in the staff's suggested amendments as described in the previous sections of this memorandum.

Some commenters suggested that the requirements of the standard should be made more stringent to improve the level of safety provided by the standard. Comments suggested reviewing the appropriateness of the ignition source and ignition time, increasing the ignition time from one second to five seconds and revising the acceptable burn times. In addition, commenters recommended considering forced ignition, ignition of the lower cut edge of the specimen and horizontal and vertical test configurations, as well as warning labels.

The staff observes that this proceeding does not include any proposal to change the classification criteria of the clothing textiles standard, require additional testing or include new labeling requirements. The scope of the ANPR was limited to considering changes to the standard to better reflect current consumer practices, modernized testing equipment and clarifying several aspects of the standard. If the Commission were to find that a new or amended standard for clothing textiles and articles of wearing apparel may be needed to adequately protect the public, it could begin a separate proceeding for issuing a new standard or amending the current one.

The comments are listed in **TAB G**, and the staff's responses are listed in **TAB C**, **TAB D** and **TAB E**.

## VI. PRELIMINARY REGULATORY ANALYSIS (TAB F)

The staff has determined that the suggested amendments will not make any changes to the scope or pass/fail criterion of the standard that will have significant economic impact. Manufacturers and test laboratories are already following these procedures, and the amendments simply codify existing practices. Consequently, staff does not expect any costs or benefits associated with these changes. Moreover, these amendments are not expected to have a significant impact on a substantial number of small entities. The amendments will not produce significant environmental effects. A six month effective date is recommended.

## VII. CONCLUSIONS

The staff believes it is appropriate to amend 16 C.F.R. Part 1610 *Standard for the Flammability of Clothing Textiles* to update the refurbishing methods, allow for modern technology and reorganize and clarify large portions of the standard. Most commenters supported these changes and provided practical suggestions which staff believes will improve effectiveness and compliance with the standard. The staff's suggested amendments do not redefine the standard's acceptance criteria. The amendments are not expected to have any significant economic impact on small businesses or have any potential to produce significant environmental impacts.

## VIII. OPTIONS

1. Direct the staff to prepare a notice of proposed rulemaking that could result in revising 16 C.F.R. Part 1610 *Standard for the Flammability of Clothing Textiles* if the Commission finds that the amendments are needed to address an unreasonable risk of deaths and injuries from ignition of clothing textiles.
2. Make no change to 16 C.F.R. Part 1610 *Standard for the Flammability of Clothing Textiles* and direct the staff to prepare a notice withdrawing the ANPR of September 12, 2002.

## IX. RECOMMENDATION

The staff recommends that the Commission instruct the staff to prepare a draft notice of proposed rulemaking that could result in revising the *Standard for the Flammability of Clothing Textiles* in accordance with the suggestions in the memorandum and that the notice provide for a 75-day period of public comment.

## X. REFERENCES

1. "Briefing Package: Standard for the Flammability of Clothing Textiles, ANPR to Amend and Update", U.S. CPSC, May 29, 2002.
2. *Federal Register* notice "16 CFR 1610 Standard for the Flammability of Clothing Textiles: Advance Notice of Proposed Rulemaking" published by the Consumer Product Safety Commission, September 12, 2002.
3. Standard for the Flammability of Clothing Textiles, 16 C.F.R. Part 1610 (2006).
4. ASTM D1230 *Standard Test Method for Flammability of Apparel Textiles*, ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA.
5. AATCC 124-2001 *Appearance of Fabrics After Repeated Home Laundering*, American Association of Textile Chemists and Colorists, 1 Davis Drive, Raleigh, NC.
6. CPSC Engineering Laboratory Test Manual, "Compliance Testing of General Wearing Apparel," 1981.

# TAB A



UNITED STATES  
CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, DC 20207

## Memorandum

Date: November 7, 2006

TO : Patricia Adair  
Project Manager, Wearing Apparel Standard Update  
Directorate for Engineering Sciences  
Division of Combustion and Fire Sciences

THROUGH: Russell Roegner, Ph.D. *RR*  
Associate Executive Director  
Directorate for Epidemiology

Kathleen Stralka, Director  
Division of Hazard Analysis *KS*

FROM : David Miller, EPHA *D.M.*

SUBJECT : General Wearing Apparel Fires

In September 2002, the U.S. Consumer Product Safety Commission published an Advance Notice of Proposed Rulemaking (ANPR) announcing its intent to update the Standard for the Flammability of Clothing Textiles, 16 CFR Part 1610. In support of this effort, this memorandum provides estimates of fatal and non-fatal injuries to all age groups caused by ignition of all types of consumer clothing.

### Methodology

#### a) Fatal Injuries

Data Source: Mortality data were based on the Compressed Mortality File prepared by the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics (NCHS), CDC WONDER On-line Database.<sup>1</sup> These data are based on records of all deaths that occurred in the fifty states and the District of Columbia. Thus, they represent counts of deaths rather than estimates. Deaths to foreign residents are excluded. U.S. Census population data used to calculate death rates were included in this database.

<sup>1</sup> Compressed Mortality File 1979 – 1998 and 1999 – 2003 compiled from CMF 1968 – 1988, Series 20, No. 2A 2000, CMF 1989 – 1998, Series 20, No. 2E 2003 and CMF 1999-2002, Series 20, No. 2H 2004 on CDC WONDER On-line Database, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics (NCHS).



Data Selected: Fatal injuries involving clothing ignition were identified through the coded variable “Underlying cause of death” which is defined by the World Health Organization (WHO) as “the disease or injury which initiated the train of events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury,” as reported on the death certificate. The classification system used to code underlying cause of death underwent a major revision in 1999. Clothing-related fire fatalities were identified in the two systems as follows:

ICD9. 1998 and previous years: External Cause of Death=Accident Caused by Ignition of Clothing, E893

ICD10. 1999 and subsequent years: External Cause of Morbidity and Mortality=Exposure to Ignition or Melting of Nightwear, X05, and External Cause of Morbidity and Mortality=Exposure to Ignition or Melting of Other Clothing and Apparel, X06

Discussion: The ICD9 and ICD10 mortality reporting systems are quite different. A comparison of the two systems by NCHS indicated that the change in system has resulted in a discontinuity in cause-of-death trends for many causes.<sup>2</sup> For the group “Accidental Exposure to Smoke, Fire and Flames” which includes clothing ignitions as well as other fire causes, the estimated comparability ratio was 0.9743 with a 95 percent confidence interval of .9568 and .9918, indicating that fatalities reported under ICD10 were 97.43 percent of the ICD9 level. Application of this ratio to the ICD10 death counts results in only minor changes, an estimated increase of about 3 deaths annually for the level of deaths reported.

Death rates have been age-adjusted to “remove” the effects of population age distributions that change over time so that meaningful comparisons of risk can be made between populations with different proportions of people at high, or low, risk. The populations used to calculate rates were the census population estimates for the year under study.

## **b) Non-fatal Injuries**

Data Source: Estimates of non-fatal burn injuries associated with clothing ignition were based on data reported through CPSC’s National Electronic Injury Surveillance System (NEISS), a probability sample of about 100 hospitals that represent all hospitals with emergency departments in the U.S. Participating hospitals capture all injuries associated with consumer products and recreational activities that are treated in their emergency departments, allowing calculation of national estimates of injuries by product, along with confidence intervals associated with those estimates.

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<sup>2</sup> Anderson, RN et al, “Comparability of Cause of Death Between ICD-9 and ICD-10: Preliminary Estimates,” National Vital Statistics Reports, Vol. 49, No. 2, Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, May 18,2001.

Data Selected: Injuries selected met all of the following criteria:  
 Date of Treatment 1/1/96 – 12/31/05  
 Patient Age: All ages  
 Product codes: 1644-Nightwear, 1645-Daywear, 1646-Outerwear,  
 1677-Other Clothing, and 1658-Clothing Not Specified.  
 Diagnoses: 51-Thermal Burns or 47-Burns Not Specified  
 Narrative: Comments in the record indicated ignition of clothing

Discussion: Since NEISS estimates are based on sample data, if the sample size of specific categories of interest is too small the estimates produced may have large variability associated with them. One fatal injury involving clothing ignition was reported during this period. It was excluded from the non-fatal injury estimates presented.

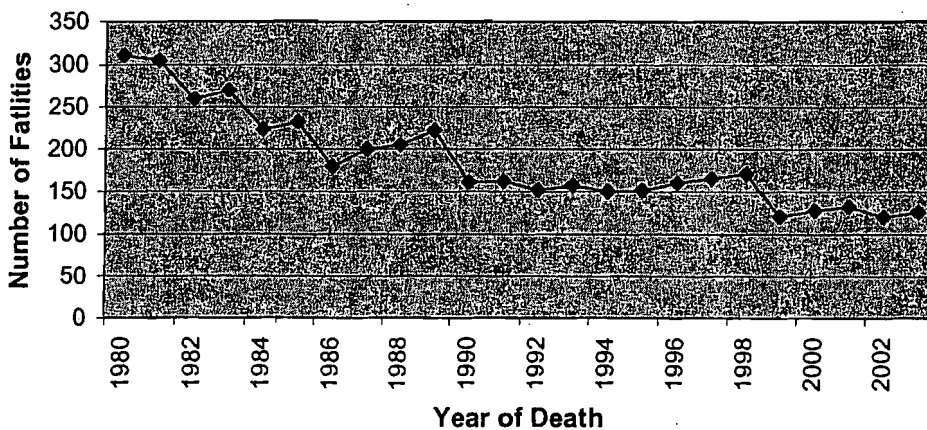
**Results**

**a) Fatalities**

NCHS mortality data indicated that fatalities caused by clothing ignition have experienced a general decline. Continuing a decline begun earlier, clothing fatalities declined from 311 fatalities in 1980 to 110 fatalities (adjusted) in 2003, the most recent year of available data (Figure 1). The age-adjusted death rates associated with clothing ignition declined from 1.5 deaths per million U.S. population to 0.4 deaths per million during this period. An average 122 clothing fire related fatalities occurred annually during 1999 – 2003, the years reported in ICD10 format (Table 1).

**Figure 1**

**Clothing Fire Fatalities, 1980 to 2003**



Source: NCHS Mortality data, CDC WONDER On-line database for years up to 2002. Data was extracted directly from NCHS Mortality Data file for 2003.

**Table 1. Clothing Ignition Fatalities, 1980 - 2003**

Year	Count	Age- Adjusted Rate/Million Population
1980	311	1.5
1981	305	1.4
1982	260	1.2
1983	270	1.2
1984	223	1.0
1985	232	1.0
1986	179	0.8
1987	200	0.8
1988	205	0.9
1989	222	0.9
1990	161	0.6
1991	162	0.6
1992	152	0.6
1993	157	0.6
1994	150	0.6
1995	151	0.5
1996	160	0.6
1997	165	0.6
1998	171	0.6
<hr/>		
1999	121*	0.4
2000	128*	0.4
2001	133*	0.5
2002	120*	0.4
2003	110*	0.4
<b>Mean 99 - 03</b>	<b>122*</b>	<b>0.4</b>

Note: Solid line designates change of data coding system; ICD9 above the line, ICD10 below the line.

\* Data for 1999 - 2003 was adjusted to compensate for the change in data system.

Source: NCHS Mortality data, CDC WONDER On-line database for years up to 2002. Data was extracted directly from NCHS Mortality Data file for 2003.

Death rates among different age groups varied considerably (Table 2). Based on the mean unadjusted counts by age group for the years 1999 - 2003, death rates generally increased with age. All age groups of 65 and older had death rates higher than the mean of the whole population (assigned an index of 1). The age group of 65 to 74 had a rate 3 times higher, those ages 75 to 84 had a rate over 7 times higher, and those ages 85 and older had a rate 14 times higher.

**Table 2. Clothing Ignition Fatalities, Year by Age Group, 1994 – 2003**

Year	Age Group									
	Total	<5	5 to 14	15-24	25 - 44	45-64	65 - 74	75-84	85+	Unk
1994	150	3	0	3	12	24	27	44	37	0
1995	151	2	0	3	10	25	32	49	29	1
1996	160	2	0	0	16	18	32	53	39	0
1997	165	1	2	3	12	33	27	48	39	0
1998	171	3	3	4	14	30	31	49	37	0
1999	118	0	2	0	10	19	22	39	26	0
2000	125	0	1	4	6	18	21	49	26	0
2001	130	1	0	0	4	21	31	43	30	0
2002	117	0	2	0	2	26	19	42	25	1
2003	107	1	1	0	6	24	24	26	25	0
<b>Mean 99-03</b>	119	0	1	1	6	22	23	40	26	0
<b>Mean Rate/Mill</b>	0.42	0.02	0.03	0.02	0.07	0.34	1.28	3.16	5.98	
<b>Indexed Rate</b>	1	0.05	0.07	0.05	0.16	0.80	3.05	7.55	14.27	

Note: Solid line designates change of data coding system; ICD9 above the line, ICD10 below the line.

ICD10 counts have not been adjusted.

Source: NCHS Mortality data, CDC WONDER On-line database for years up to 2002. Data was extracted directly from NCHS Mortality Data file for 2003.

### b) Non-Fatal Injuries

In contrast to the decline in the number of clothing fire-related deaths, estimated non-fatal injuries have not differed much in the most recent ten years (Table 3). A statistical test of significance gave no evidence of a trend in the data (p-value=.886). During the most recent five years (2001 – 2005), there were an estimated 3,832 non-fatal injuries associated with clothing ignition (95% confidence interval of 3,112 – 4,551) treated in hospital emergency departments annually. This estimate represents a mean annual rate of 13.2 injuries per one million population. Unlike the rates seen for deaths, non-fatal injuries had some of its highest rates of occurrence among patients ages 5 to 14 and 15 to 24, about one and a half times the rate for all ages combined (Table 4).

**Table 3. Estimated Non-Fatal Burn Injuries Associated with Clothing Ignition, Treated in Hospital Emergency Departments, 1996 – 2005**

Year	Estimate	Frequency	CV	95% Confidence Interval	Rate/Million Population
1996	3,179	105	0.28	1,437 - 4,921	11.8
1997	3,826	101	0.15	2,709 - 4,943	14.0
1998	3,641	107	0.14	2,664 - 4,618	13.2
1999	4,702	125	0.13	3,492 - 5,912	16.8
2000	3,740	108	0.15	2,617 - 4,863	13.3
2001	3,793	109	0.13	2,796 - 4,790	13.3
2002	3,528	116	0.15	2,480 - 4,576	12.2
2003	3,722	115	0.15	2,647 - 4,797	12.8
2004	4,326	113	0.14	3,105 - 5,547	14.7
2005	3,793	111	0.16	2,542 - 4,904	12.8
<b>Mean 2001 – 2005</b>	<b>3,832</b>	<b>113</b>	<b>0.10</b>	<b>3,112 - 4,551</b>	<b>13.2</b>

Source: NEISS and Census population estimates, U.S. Consumer Product Safety Commission/EPHA

**Table 4. Estimated Non-Fatal Burn Injuries Associated with Clothing Ignition By Age Group, Treated in Hospital Emergency Departments, 2001 – 2005**

Age Group (Years)	Estimate	Frequency	CV	95% Confidence Interval	Rate/Million Population	Indexed Rate
Less Than 5	713	23	0.31	274 - 1,152	7.2	0.5
5 - 14	3,847	148	0.13	2,841 - 4,853	18.8	1.4
15 - 24	4,553	108	0.14	3,319 - 5,787	22.1	1.7
25 - 44	3,262	98	0.14	2,388 - 4,136	7.7	0.6
45 - 64	3,598	105	0.17	2,400 - 4,796	10.5	0.8
65 - 74	1,743	42	0.19	1,088 - 2,398	18.9	1.4
75+	1,445	40	0.21	844 - 2,046	22.5	1.7
<b>Total</b>	<b>19,161</b>	<b>564</b>	<b>0.10</b>	<b>15,567 - 22,755</b>	<b>13.2</b>	<b>1.0</b>

Source: NEISS and Census population estimates, U.S. Consumer Product Safety Commission/EPHA

Based on the total estimated injuries for this 5-year period, about 25 percent of the estimated non-fatal injuries were serious enough to be either treated and admitted or treated and transferred to another hospital for treatment, e.g., a burn center (Table 5). In contrast, among all consumer product-related injuries seen at the emergency department during this period an estimated 5 percent were hospitalized or transferred for treatment.

**Table 5. Estimated Non-Fatal Burn Injuries Associated with Clothing Ignition by Disposition, Treated in Hospital Emergency Departments, 2001 – 2005**

Emergency Department Disposition	Estimate	Percent	Frequency	CV	95% Confidence Interval
Treated & Released	14,130	74	384	0.09	11,563 - 16,697
Treated & Transferred	2,541	13	54	0.16	1,734 - 3,348
Treated & Admitted	2,374	12	119	0.32	1,020 - 3,728
Held for Observation	*	*	4	*	*
Left Without Being Seen	*	*	3	*	*
Disposition Not Recorded	*	*	0	*	*
<b>Total</b>	<b>19,161</b>	<b>100</b>	<b>564</b>	<b>0.10</b>	<b>15,567 - 22,755</b>

\* Sample size is too small to support estimation

Source: NEISS, U.S. Consumer Product Safety Commission/EPHA

More than 75 percent of clothing ignition-related non-fatal injuries involved some type of daywear, such as shirts, pants, dresses, etc. (Table 6). About 9 percent of the injuries involved sleepwear, and 6 percent involved outerwear, such as coats. Clothing accessories such as hats are not covered by the General Wearing Apparel Standard and are not included here.

**Table 6 . Estimated Non-Fatal Burn Injuries Associated with Clothing Ignition by Type of Clothing Involved, Treated in Hospital Emergency Departments, 2001 – 2005**

Type of Clothing, Product Code	Estimate	Percent	Frequency	CV	95% Confidence Interval
Day Wear, 1645	14,773	77	442	0.10	11,877 - 17,669
Nightwear, 1644	1,660	9	48	0.18	1,064 - 2,256
Outer Wear, 1646	1,229	6	24	0.22	695 - 1,763
Other, 1677 *	*	*	3	*	*
Clothing NS, 1658	1,347	7	47	0.22	747 - 1,947
<b>Total</b>	<b>19,161</b>	<b>100</b>	<b>564</b>	<b>0.10</b>	<b>15,567 - 22,755</b>

\*Sample size is too small to support estimation

Source: NEISS, U.S. Consumer Product Safety Commission/EPHA

### Discussion:

Mortality data from NCHS indicated that there has been a general decline in clothing ignition-related fatalities since 1980. Some part of the decrease between 1998 and subsequent years may be due to the change in the mortality reporting system, although historic data on clothing ignitions reveal similar levels of change in earlier years.

The difference in the age group distributions of fatalities and non-fatal injuries associated with clothing ignition was quite striking. Among fatal clothing ignitions, death rates rose dramatically with age, first rising above the average in the age group of 65 to 74. Among non-fatal clothing ignitions, rates higher than average occurred among those ages 5 to 14 and 15 to 24 as well as among those ages 65 and older. This may indicate that the fire *incidence* rate may not rise with age but that the effects of the injury do, particularly among the very oldest age groups. However, even the non-fatal injuries appeared to be more severe on average than hospital emergency room-treated injuries overall.

Since a special study of clothing fire incidents was not conducted, only general information about the type of clothing involved has been reported here. More detailed information about the injury scenarios and the clothing involved would require systematic follow-up investigations of clothing fires involving all age groups and clothing types.

**Summary:**

Mortality data indicated that fires involving clothing ignition resulted in 122 fatalities annually during the most recent years for which data was available (1999 – 2003). Population fatality rates increased with age. In addition, an estimated 3,800 non-fatal injuries were treated in hospital emergency departments annually (2001 – 2005). Among these non-fatal injuries, 25 percent were severe enough to require admission to the hospital. More than 75 percent of the clothing fire-related non-fatal injuries involved some form of daywear.

**TAB B**





UNITED STATES  
CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, DC 20207

Memorandum

Date: July 6, 2006

TO : Patricia Adair, Textile Technologist, Division of Combustion and Fire Sciences, Directorate for Engineering Sciences

THROUGH: Mary Ann Danello, Ph.D., Associate Executive Director, Directorate for Health Sciences *mad*  
Lori E. Saltzman, M.S., Director, Division of Health Sciences *mad for LES*

FROM : Cassandra Prioleau, Ph.D., Pharmacologist, Division of Health Sciences *cl*

SUBJECT : Assessment of the Potential for Health Concerns Associated with the Utilization of the Dry Cleaning Solvent, Perchloroethylene

Health Sciences (HS) staff was asked to review the toxicity of perchloroethylene (PERC) and assess whether any potential health concern exists with its utilization as a dry cleaning solvent in commercial machines\*.

POTENTIAL SOURCES FOR HUMAN EXPOSURE:

Exposure to PERC can occur while using dry cleaning machines or from dry-cleaned samples. The U.S. Environmental Protection Agency (EPA) regulates PERC under the Clean Air Act Amendments of 1990 (40 CFR Part 63). This regulation requires facilities that utilize PERC to limit the release of PERC to the atmosphere by installing special filters to all new dry cleaning machines (e.g., dry-to-dry machines where cleaning and drying are done in the same machine) and existing transfer machines (i.e., the worker must manually transfer wet clothes containing PERC from a cleaning machine to a dryer) that use more than 1,800 gallons of PERC per year. New regulations proposed in late 2005, if enacted, will prohibit the use of transfer machines and require owners to conduct enhanced leak detection and repair programs.

A review of the medical literature indicates that no health effects from PERC are expected to occur at concentrations below 719 mg/m<sup>3</sup>. A review of the exposure literature indicates that dry cleaning plants utilizing transfer machines had PERC levels that ranged from 56 mg/m<sup>3</sup> to 1,429 mg/m<sup>3</sup> (4 hour time weighted average) (Fisher, 1978). PERC levels in dry cleaning plants utilizing dry-to-dry machines were less, ranging from 45 mg/m<sup>3</sup> to 466 mg/m<sup>3</sup>. Surveys of ambient air around dry cleaning facilities (median = 0.028 mg/m<sup>3</sup>) demonstrate slightly elevated levels compared to areas not around dry cleaning facilities (median = 0.003 mg/m<sup>3</sup>) (McDermott et al., 2005).

\*A more detailed assessment memo can be found in the file (memo from Cassandra Prioleau, April 13, 2006).

Negligible amounts of PERC vapors are released from recently dry-cleaned clothing (Fisher, 1978). In correctly operated and maintained dry cleaning machines, as much as 98% of PERC can be recovered from dry-cleaned clothing. A study by the International Fabricare Institute (IFI) showed that it takes 2125 pounds of 100% cotton, 483 pounds of 100% polyester, or 253 pounds of 65% polyester/ 35% cotton to retain one fluid ounce of PERC in the dry-cleaned fabric (Fisher, 1978).

#### CONCLUSIONS:

Total exposure to PERC is likely to be low in areas surrounding dry cleaning equipment and only likely to be intermittent and from indirect exposure from dry-cleaned samples that have residual PERC. In dry cleaning industries, PERC is utilized within an enclosed system that minimizes the danger to the environment, human life or health.

Samples are required to be dry-cleaned in 16 CFR Part 1610 (Standard for the Flammability of Clothing Textiles). The use of dry cleaning systems that meet EPA specifications should minimize any potential risk of injury since the exposure to PERC during the cleaning process or from dry-cleaned clothes should be de minimus.

#### REFERENCES:

Fisher WE. (1978) Safe handling of perchloroethylene. International Fabricare Institute, Focus on Drycleaning, Volume 2/ Number 1. September/ October.

McDermott M, Mazor, K, Shost S, Narang R, Aldous K, Storm J. (2005) Tetrachloroethylene (PCE, Perc) levels in residential dry cleaner buildings in diverse communities in New York City. Environ Health Perspec. 113: 1336-1343.

**TAB C**



UNITED STATES  
CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, DC 20207

## Memorandum

Date: November 21, 2006

TO : Patricia Adair, Project Manager, Clothing Textiles Standard Update  
Directorate for Engineering Sciences

THROUGH: Andrew G. Stadnik, P.E., Associate Executive Director, *Andrew G. Stadnik*  
Directorate for Laboratory Sciences  
Edward W. Krawiec, P.E., Director, Division of Engineering *Edward W. Krawiec*

FROM : Gail Stafford, Division of Engineering *GS*  
Weiyang Tao, Division of Engineering *WT*

SUBJECT : Response to Comments Received as a Result of the Advance Notice of  
Proposed Rulemaking (ANPR) for Updating the Standard for the Flammability  
of Clothing Textiles

The Directorate for Laboratory Sciences (LS) was asked to address seven issues identified in the comments received on the ANPR for updating the Standard for the Flammability of Clothing Textiles (16 CFR Part 1610). This memorandum summarizes the issues identified and presents the LS responses to them.

### COMMENTS REGARDING THE DESICCANT SPECIFIED IN THE STANDARD

**Comment:** One commenter (#16) recommends specifying silica gel as the desiccant instead of anhydrous calcium chloride. While another commenter (#10) is concerned about the potency of the anhydrous calcium chloride desiccant and consequently the efficacy of testing. The commenter notes that the only way to ensure the potency of anhydrous calcium chloride desiccant is to require maintaining daily logs detailing the initial temperature and humidity readings inside the desiccator at the start of each day, as well as after each test is completed.

**Response:** Staff agrees with the commenters and recommends specifying silica gel as the preferred desiccant in the staff's suggested amendments. Silica gel is recognized as an effective, reliable desiccant; and it can be reactivated by heating, thus making it economical. Other Flammable Fabrics Act (FFA) standards (16 CFR Parts 1615, 1616, 1630 & 1631) specify silica gel as the preferred desiccant, and for the purpose of uniformity the CPSC laboratory has been using silica gel as the desiccant for all FFA testing since 1973.<sup>1</sup>

<sup>1</sup> Memorandum from Jean C. Williams, ESEL, to Robert G. Poth, CARM, *Justification for Laboratory Procedural Changes*, June 9, 1981, U. S. Consumer Product Safety Commission.

Regarding the potency of the desiccant, unlike anhydrous calcium chloride desiccant the color-changing silica gel indicator provides a visual indication that the desiccant has become saturated with moisture. When the indicating silica gel crystals change color, the desiccant is reactivated by heating it in a laboratory oven.

## COMMENTS RELATING TO PRELIMINARY TESTS

**Comment:** One commenter (#7) recommends eliminating the preliminary tests requirement because the majority of apparel garments are cut in the lengthwise direction, therefore only the lengthwise direction of a garment or fabric needs to be tested.

**Response:** When a garment is worn on a body, the orientation of the fabric varies. The standard specifies that the long dimension of a plain surface textile fabric specimen is that direction in which the fabric burns most rapidly. To determine which fabric direction burns the most rapidly, the standard requires preliminary tests of specimens cut in different directions. Because there can be differences in the burning characteristics with respect to fabric direction, the staff believes that the requirement for preliminary tests should not be eliminated.

**Comment:** One commenter (#10) suggests increasing the number of preliminary tests, especially for raised fiber surface textile fabrics to include both lengthwise and crosswise directions. The commenter is concerned about low-pile fabrics where it may be difficult to determine the correct direction of the raised surface fibers.

**Response:** For raised fiber surface textile fabrics the standard requires the direction of the lay of the surface fibers be parallel with the long dimension of the specimen. Selecting specimens in this manner allows for the brushing procedure to raise the surface fibers, since the specimen is brushed against the direction of the lay of the surface fibers. The standard requires tests of the most flammable surface of the fabric. With many raised fiber surface textile fabrics it is easy to determine the direction of the lay of the surface fibers by touch and visual observation, and preliminary tests are not needed. Regarding those fabrics where it may be difficult to visually determine the correct direction of the lay of the raised surface fibers, preliminary tests should be done to determine the direction with the fastest burning time. Since the standard already requires preliminary tests to determine the most flammable fabric direction, there is no need to specifically require preliminary tests of both the lengthwise and crosswise direction of raised fiber surface textile fabrics.

## COMMENTS ABOUT REPORTING TEST RESULTS

**Comment:** One commenter (#7) recommends using simplified abbreviations (or codes) for reporting burn test results.

**Response:** The standard does not provide codes to report test results. However, the CPSC staff developed test result codes many years ago for both plain surface and raised fiber surface textile fabrics. These codes are found in the CPSC's Laboratory Test Manual<sup>2</sup>, and the CPSC

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<sup>2</sup> US CPSC Engineering Laboratory Test Manual for Compliance Testing of General Wearing Apparel, May 1981.

laboratory staff has used them to record test results for a number of years. Uniform result codes will facilitate reporting accuracy, understanding of flammability performance and resolution of test result differences among laboratories. For these reasons the test result codes (for both plain surface and raised fiber surface textile fabrics) as stated in the CPSC test manual are included in the staff's suggested amendments. Each test result code represents a visual observation that is critical for proper fabric classification and should be reported along with the numerical burn time for each test specimen. These observations are especially critical for raised fiber surface textile fabrics in order to determine the source of the burning of the base fabric. For example, did the burning begin at the point of flame impingement (SFBBpoi) or did it result from the intensity of the surface flash at places other than the point of flame impingement (SFBB)? In order to establish a failure, those fabrics with flame spread time of less than four seconds require the additional finding that the base fabric burning resulted from the surface flash (SFBB).

**Comment:** One commenter (#4) recommends specifying or suggesting a report format in order to attain consistent and accurate reporting of test results among laboratories.

**Response:** Staff agrees with the commenter that it would be helpful if an example test data sheet is provided. A suggested test report format could be provided in the CPSC's Laboratory Test Manual as well as on the CPSC website.

#### **COMMENT REGARDING THE DRYCLEANING METHOD**

**Comment:** One commenter (#4) recommends using Rynex®, GREENEARTH®, DF-2000®, CO2® and wet cleaning as alternates to perchloroethylene (PERC) for the proposed test procedure.

**Response:** The purpose of the dry cleaning and laundering procedures specified in 16 CFR Part 1610 is to remove any non-durable flame retardant chemicals on fabrics. The present 16 CFR Part 1610 specifies a dry cleaning procedure that uses perchloroethylene (PERC) in an open vessel. This procedure is known to be an unsafe practice since the operator may be subject to inhaling a chemical which has been shown to cause cancer in animal tests<sup>3</sup>. The staff conducted a review of PERC<sup>4</sup> and considers PERC toxic because it is a probable human carcinogen. The CPSC staff discontinued use of the open vessel procedure in 1985. On occasion, the staff has used the Option B dry cleaning procedure specified in ASTM International D1230, Standard Test Method for Flammability of Apparel Textiles. Staff found the risk to humans is minimal because the procedure reflects current practice in the dry cleaning industry to use PERC in equipment that provides a closed environment that complies with EPA regulations, thus, total exposure is low. The ASTM D1230 procedure was found to be as stringent as the procedure specified in 16 CFR Part 1610.<sup>5</sup>

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<sup>3</sup> EPA and CPSC, *The Inside Story – A Guide to Indoor Air Quality*, Page 17, September 1993.

<sup>4</sup> Memorandum to Patricia Adair, ES, from Cassandra Prioleau, HS, Toxicity Review of Perchloroethylene, April, 2006.

<sup>5</sup> Letter to Don Knodel, Chairman of ASTM subcommittee D13.52 flammability, from Linda Fansler, ES, June 1993.

Most dry cleaning operations in the US still use PERC as the dry cleaning solvent according to the International Fabricare Institute (IFI)<sup>6</sup>. PERC is more aggressive than other commercial dry cleaning solvents and more likely to remove certain finishes on the fabric.

The staff also conducted a search of alternative dry cleaning procedures in other textile standards<sup>7</sup>. That search confirmed that the most appropriate dry cleaning procedures were found in ASTM D 1230, Option B. However, the D1230 procedure does not specify dry cleaning parameters that commercial dry cleaning operations should use for the test procedure. Differing process times, temperatures, and detergents could result in differences in test results. For tests to be comparable, the staff's suggested amendments also specify certain dry cleaning parameters. Staff recommends using the following dry cleaning parameters as suggested by the International Fabricare Institute (IFI)<sup>8,9</sup>:

Solvent: perchloroethylene  
Detergent class: cationic  
Cleaning: 10-15 minutes  
Extraction: 3 minutes  
Drying temperature: 140-150 °F  
Drying time: 18-20 minutes  
Cool down/deodorization: 5 minutes.

The two most common types of dry cleaning detergents are anionic and cationic detergents. The majority of the dry cleaning operations currently use cationic detergents<sup>10</sup>. Cationic detergents will remain on the fabrics after dry cleaning; however, the subsequent laundering procedure should remove the residue.

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<sup>6</sup> Meeting log of conference call with Mary Scalco and Brian Johnson, International Fabricare Institute, and CPSC staff, August 2, 2005.

<sup>7</sup> Memorandum to Margaret Neily, ES, from Weiyang Tao, LS, *Alternate Dry Cleaning and Washing Requirements of Apparel Specified in Standards other than 16 CFR Part 1610 Standard for the Flammability of Clothing Textiles*. March 1, 2002, U. S. Consumer Product Safety Commission.

<sup>8</sup> Letter to Patricia Adair, CPSC, from Brian Johnson, International Fabricare Institute, August 2, 2005.

<sup>9</sup> E-mail to Patricia Adair, CPSC, from Brian Johnson, International Fabricare Institute, August 3, 2005.

<sup>10</sup> Meeting with the IFI staff and CPSC staff, September 13, 2005.

**TAB D**





UNITED STATES  
CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, DC 20207

**Memorandum**

Date: November 20, 2006

TO : The File

THROUGH: Hugh McLaurin, Associate Executive Director *Am*  
Directorate for Engineering Sciences

FROM : Patricia K. Adair, Project Manager *(PKA)*  
Directorate for Engineering Sciences

SUBJECT : Analysis of ANPR Comments on the Clothing Textile Standard Update

The Commission's advance notice of proposed rulemaking to revise and update the *Standard for the Flammability of Clothing Textiles* was published in the *Federal Register* on September 12, 2002. During the comment period, the CPSC received a total of 18 written comments from businesses, trade associations and interested parties representing various segments of the fiber, textile and apparel industries as well as academic institutions and fire service organizations. The comments are listed in **TAB G**, and the staff's responses are listed below and in **TAB C** and **TAB E**.

1. *Commenters generally agree that the Standard for the Flammability of Clothing Textiles needs to be updated to include a modern testing apparatus, as well as refurbishing practices which reflect current consumer practices. Most, but not all, commenters suggested that only technical changes are needed (#6, 11, 14, 16, 17, 18).*

The Commission's staff believes that the standard is working as intended and is suggesting only technical amendments to clarify the requirements of the standard. The staff agrees that portions of the *Standard for the Flammability of Clothing Textiles* have become outdated in several respects and need to be modernized to include an automated version of the testing apparatus, as well as modern refurbishing (dry cleaning and laundering) practices and equipment.

Flammability testing apparatus. The staff's suggested amendments provide a description, with figures, of the critical parameters of a modern flammability test apparatus. In addition, Subpart B *Rules and Regulations* §1610.40 allows for the use of an alternate apparatus, provided that persons and firms issuing guarantees that fabrics or garments subject to the standard meet its requirements have data or information to demonstrate that the alternative test is as stringent as, or more stringent than, the test in the standard.

Laundering procedure. The staff's suggested amendments specify updated laundering requirements, using a home style automatic washing machine, similar to those prescribed in

the American Association of Textile Chemists and Colorists (AATCC) Test Method 124-2001 "Appearance of Fabrics After Repeated Home Laundering." The laundering method also includes a requirement for machine drying. CPSC testing indicates that some raised fiber surface textiles perform differently after the machine wash/tumble dry method than after the procedure required by the current standard.<sup>1</sup> Requiring automatic machine washing and tumble drying will ensure a realistic measure of consumer use of these fabrics. As of 2003, 94.3% of U.S. households had washers and 81.2% had clothes dryers.<sup>2</sup>

The most current version of the AATCC test method will be incorporated by reference (AATCC 124-2001). The laundering and tumble drying conditions referenced in AATCC 124-2001 are identical to AATCC 124-1996 which is referenced in other FFA standards.

Dry cleaning procedure. The method of dry cleaning in the current standard requires using perchloroethylene (PERC) in an open vessel. PERC has been shown to cause cancer in animal tests, and use in an open vessel violates regulations issued by the Environmental Protection Agency. The staff's suggested amendments specify a "normal" commercial dry cleaning cycle using PERC in a commercial dry-cleaning machine (closed environment) and includes specifications for cleaning, extraction, drying temperature, drying time and cool down/deoderization.<sup>3</sup>

2. *One commenter (#4) suggested considering new dry cleaning methods/solvents as an alternative to perchloroethylene.*

Staff recognizes that new dry cleaning technologies have emerged in recent years as alternatives to perchlorethylene and that at least one region of the country is moving to phase-out the use of perchlorethylene by 2020.<sup>4</sup> At this time, however, approximately 70% of US dry cleaners still use perchlorethylene.<sup>5</sup>

Perchlorethylene is known to be slightly more severe in solvent action than other solvents and more likely to remove any flame retardant treatments on textiles. The staff's suggested amendments prescribe a "normal" commercial dry cleaning method which includes specifications for cleaning, extraction, drying temperature, drying time and cool down/deodorization.<sup>6</sup> Samples are to be cleaned in a commercial dry cleaning machine, using perchloroethylene as the solvent. (TAB C)

3. *One commenter (#5) expressed concern over the role of fabric softeners in fabric flammability.*

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<sup>1</sup> Memorandum to L. James Sharman, Fire Program Officer, OPM, from Patricia Fairall, ESMT and Mary Toro, ESMT, January 29, 1985.

<sup>2</sup> *Appliance*, September 2004, p. 6.

<sup>3</sup> Letter from Brian Johnson, International Fabricare Institute, to Patricia K. Adair, Aug. 2, 2005.

<sup>4</sup> "Southern California District Votes to Ban Perchloroethylene in Dry Cleaning by 2020." *Chemical Regulation Reporter*; Vol. 26, No. 48. Dec. 9, 2002.

<sup>5</sup> Meeting log of conference call with Mary Scalco and Brian Johnson, International Fabricare Institute, and CPSC staff, August 2, 2005.

<sup>6</sup> Letter from Brian Johnson, International Fabricare Institute, to Patricia Adair, Aug. 2, 2005.

According to the Procter and Gamble Company, about 71% of U.S. households have some form of fabric softener.<sup>7</sup> The most common forms of fabric softeners for home laundering are liquid softeners (purchased by 42% of U.S. households) and dryer-added sheet softeners (purchased by about 49% of U.S. households). Dryer sheet softeners have anti-static properties. Some households use both forms; some consumers use both a rinse cycle softener and a dryer sheet softener for the same load of laundry.

At the present time there is no "standard reference" fabric softener. The American Association of Textile Chemists and Colorists (AATCC) technical committee RA88 on Home Laundering Technology is working on the development of a standard reference fabric softener; the technical committee estimates that this work may be completed in approximately three years.<sup>8</sup> Staff recommends not including a requirement for fabric softener at this time since there is no standard fabric softener to reference.

4. *For changes to the dry cleaning and laundering procedures, two commenters suggested CPSC consider current AATCC and ASTM standards (#4, 16).*

The staff's suggested amendments incorporate certain sections of AATCC Test Method 124-2001 "*Appearance of Fabrics After Repeated Home Laundering*," consistent with other FFA regulations (16 C.F.R. Part 1615, 1616, 1630, 1631 and 1632).

The dry cleaning procedure in the staff's suggested amendments to the standard is similar but not identical to ASTM D1230 *Standard Test Method for Flammability of Apparel Textiles* section 9.2.1.6 Option B. The staff recommends amending the standard to provide specifications for dry cleaning in a commercial dry-cleaning machine using perchloroethylene in a "normal" cycle.<sup>9</sup>

5. *One commenter provided suggestions for updating the laundering method which included increasing the number of cycles (#4).*

The intent of the laundering and dry cleaning requirements of the standard is to remove any non-durable flame retardant treatments that may be on the clothing textile; its intent is not to replicate the consumer's refurbishing practices.

6. *One commenter suggested requiring only the refurbishing method on the garment care label (#15).*

The standard applies to fabrics and fabrics used in garments. While the test method can be used to test fabric in the garment stage it also applies to fabric before it is sewn into a garment, so a fabric care label may not be present. The refurbishing requirement (laundering/dry cleaning) is to remove any solvent or water soluble treatment that might be

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<sup>7</sup> Letter to Patricia K. Adair, ESFS, from Donald R. Brown, Ph.D., Procter and Gamble, May 2, 2006.

<sup>8</sup> Personal communication between Patricia K. Adair, ES and Dr. Nodie Washington, Chair of AATCC Research Committee RA88 on Home Laundering Technology, April 30, 2006.

<sup>9</sup> Letter from Brian Johnson, International Fabricare Institute, to Patricia K. Adair, Aug. 2, 2005.

on the garment. It is not meant to test the durability of fabric treatments over the lifetime of a garment. (TAB E)

7. *Several commenters suggested areas of the standard in need of clarification. These included clarifying the brushing of the specimens, fabrics considered to be raised fiber textiles (including examples), determination of the nap direction of raised surface textiles, exemptions allowed and interpretation of test results for classification (#4, 7, 11, 16).*

Staff agrees that sections of the current standard are difficult to interpret and need clarification, including clearer instructions on brushing of raised fiber surface textiles and determination of which fabrics are considered to have raised fiber surfaces. The staff's suggested amendments to the standard include examples of raised fiber surface textiles and provide guidance on testing these fabrics. Staff suggests amending the standard by moving language from footnotes into the body of the standard to clarify the exemptions allowed and bringing forward clarifying language from 16 C.F.R. Subparts B and C. In addition, the staff's suggested amendments include new text and graphics on the test procedure, interpretation of test results for classification, and a description, with figures, of the critical features of the flammability test apparatus.

8. *Commenters suggested adding portions of the CPSC laboratory test manual to clarify the test procedures in the standard (#11).*

The staff used the 1981 CPSC laboratory manual as a resource in suggesting amendments to the standard in order to clarify the test procedures.

9. *One commenter suggested that the terms "surface flash" and "base burn" be defined in the standard (#11); another suggested definitions for these terms (#16).*

The staff agrees and has added many new definitions to the suggested amendments, including definitions for "surface flash" and "base burn" in order to facilitate clearer understanding of the flammability test, classification criteria and reporting results.

10. *Two commenters suggested reorganizing the standard to eliminate duplication (#11, 16).*

The staff agrees and recommends reorganization of large portions of the standard to eliminate duplication and make it easier to follow and understand.

11. *Two commenters suggested including illustrations and definitions of burn codes; one commenter suggested simplifying the abbreviations for burn codes (#7, 13, 16).*

The current standard provides no burn codes to report complex test results. CPSC staff refined test result codes developed by the Federal Trade Commission many years ago and these codes were published in the 1981 CPSC Laboratory Manual. Industry members and test laboratories have adopted some of the CPSC staff codes, but some also developed their own codes. Staff agrees that uniform result codes would help to facilitate reporting accuracy, understanding of flammability performance, and resolution of test result differences among

laboratories. The staff's suggested amendments include the test result burn codes and definitions. Staff believes that it is not practical to include illustrations of the burn codes in the standard.

12. *Two commenters urged CPSC to continue with enforcement of 16 C.F.R. Part 1610 (#17, 18).*

The CPSC Office of Compliance actively enforces 16 C.F.R. Part 1610 and continues to see violations of the standard. From 1995 through June 2006, the Commission recalled 28 apparel products for violations of 16 C.F.R. 1610.

13. *One commenter suggested CPSC should consider promulgating a procedure or mechanism that allows the agency to make technical changes to this and other standards on a routine basis when referenced voluntary standards are upgraded by AATCC and ASTM (e.g., laundering and dry cleaning) without having to go through full notice and comment rulemaking (#11).*

For any change by a voluntary standards organization to have the force and effect of a Commission rule, the Commission must formally adopt it through notice and comment rulemaking.

14. *Some commenters suggested that the requirements of the clothing textiles standard should be made more stringent to improve the level of safety provided by the standard; comments included reviewing the appropriateness of the ignition source and ignition time (#12, 18), increasing the ignition time from 1 to 5 seconds (#12, 13), revising the acceptable burn times; considering forced ignition, ignition of the lower cut edge of the specimen and horizontal and vertical test configurations (#12, 13, 18). One comment was concerned with the need for new flammability requirements for certain types of clothing (adult sleepwear and bathrobes) (#12). One commenter suggested adding a list of "suspect fabrics" and requiring more frequent testing for these fabrics (#7).*

*Additional comments included clarifying or amending the exemptions from the requirements for testing to support guaranties and warning labels for "high-risk" garments (#5, 13).*

The staff observes that the scope of the advance notice of proposed rulemaking issued on September 12, 2002 is limited to considering changes to the standard to better reflect current consumer practices, modernized testing equipment and clarifying several aspects of the standard.

If the Commission were to find that a new or amended standard for clothing textiles and articles of wearing apparel may be needed to adequately protect the public, it could begin a separate proceeding for issuing a new standard or amending the current one in accordance with provisions of section 4 of the FFA (15 U.S.C. 1193).

15. *Two commenters suggested that the Commission initiate a comprehensive field data collection project for the purpose of obtaining specific knowledge of the circumstances surrounding burn injuries and deaths when clothing was the first item ignited (#9, 13).*

The staff currently has considerable information in this area. If the Commission felt that additional information was needed it could consider undertaking a more comprehensive data collection project.



UNITED STATES  
CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, DC 20207

**Memorandum**

Date: November 22, 2006

TO : Patricia Adair, Project Manager  
Directorate for Engineering Sciences

THROUGH: John G. Mullan, Director *JGM*  
Office of Compliance & Field Operations

Mary F. Toro, Associate Director *MFToro*  
Chemical, Clothing, Household & Tools Products

FROM : Marilyn C. Borsari, Compliance Officer *MCB*  
Chemical, Clothing, Household & Tools Products

SUBJECT : ANPR to amend the Standard for the Flammability of Clothing Textiles, 16  
C.F.R. Part 1610

Attached are the responses to comments received on the ANPR to amend the standard for the Flammability of Clothing Textiles, 16 C.F.R. Part 1610.

**ANPR Comments on Revision of 16 C.F.R. Part 1610,  
Standard for the Flammability of Clothing Textiles**

**Comment:** One commenter (# 16) suggested that §1610.62(b) be updated to reflect the current number of recalls so that the information remains evergreen.

**Response:** The staff agrees that the language of this section should be updated and written so that the information remains evergreen.

**Comment:** Three commenters (# 16, # 7 and # 15) suggested that additions be made to §1610.37(d) *Exemptions*. One commenter suggested adding four more fibers/textiles to the list in paragraph (2). The additions are: specialty wool fibers, leather, fur, and suede. The second commenter stated that animal skins or leather should be exempt since they are not textiles and are not subject to the standard. This commenter further stated that since wool from sheep is exempt in paragraph (2), it would make sense to also exempt the skin of the sheep. The final comment asked that the Commission look at the characteristics of Spandex and metallic fibers and consider adding these to the list of exemptions.

**Response:** Specialty wool fibers and leather are already included in the exemptions. Leather would most likely be a plain surface fabric and weight greater than 2.6 ounces per square yard, making it an exempt fabric in terms of § 1610.37(d)(1).

In terms of specialty wool fibers, the Federal Trade Commission (FTC) defines “wool” as “the fiber from the fleece of the sheep or lamb or hair of the Angora or Cashmere goat (and may include the so-called specialty fibers from the hair of the camel, alpaca, llama, and vicuna)...”. CPSC staff refers to the FTC definition and therefore, specialty wool fibers would already be included in the wool exemption in § 1610.37(d)(2).

In terms of the other fabrics and fibers, the Commission does not have data to support their inclusion in the “exempt fiber” exemption. Data was not submitted by the commenters to support inclusion of these items in the exempt fibers categories.

**Comment:** A recommendation made by one commenter (# 16) suggested adding two new sections to address: 1) trim less than 2 inches in width, and 2) to provide a procedure for testing fringe greater than 6 inches in length.

**Response:** The staff recommends adding a more detailed description to the standard to clarify that narrow fabrics are not tested.

**Comment:** One comment (#15) proposed “requiring only the method of laundering/dry-cleaning specified on the garment care label”. The example provided was a sweatshirt that would most likely never be dry-cleaned.



**Response:** The standard applies to fabric and fabric used in garments. While the test method can be used to test fabric in the garment stage it also applies to fabric before it is sewn into a garment, so a fabric care label may not be present. The requirement for laundering/dry-cleaning is to remove any solvent or water soluble treatment that might be on the garment and is not a test to replicate how the garment is used or how it is cleaned.

**Comment:** One comment (#7) suggested that the Commission periodically publish policy questions and answers that are provided to industry.

**Response:** This ANPR has clarified many technical issues, such as testing of fringe, hula skirts, and feathers, that have been brought to our attention in recent years. We have also updated definitions. While publishing policy questions/answers might be helpful, the Commission has confidentiality requirements which will not allow immediate publication of responses or questions the staff receives. There is information available on the CPSC website that includes: the Regulatory Summary and the staff Test Manual for Compliance Testing of General Wearing Apparel (May 1981).

# TAB F



UNITED STATES  
CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, DC 20207

**Memorandum**

Date: November 21, 2006

TO : Patricia K. Adair, ESFS  
Project Manager, Clothing Textile Standard

THROUGH: Gregory B. Rodgers, Ph.D., Associate Executive Director *GBR*  
Directorate for Economic Analysis  
Deborah V. Aiken, Ph.D., Senior Staff Coordinator *DVA*

FROM : Terrance R. Karels *TRK*  
Directorate for Economic Analysis

SUBJECT : Preliminary Regulatory Analysis: Amendments to Clothing Textile Standard

The Commission is considering technical amendments to a standard issued under the Flammable Fabrics Act (FFA). The amendments involve the Standard for the Flammability of Clothing Textiles, also known as the General Wearing Apparel Standard; the standard includes both finished apparel and textiles that could be used in apparel (such as that sold in fabric shops). The staff's suggested amendments would revise and clarify the definitions included in the standard, consolidate the purpose, scope, and applicability into one section, and update portions of the test methods, making it easier for compliance by the now-mostly foreign manufacturers and importers of clothing textiles. The revisions were suggested to the Commission through comments to the advance notice of proposed rulemaking (ANPR) issued in September 2002.

The staff's suggested amendments would also update refurbishing test requirements that are conducted prior to the flammability tests. These include changes in the permitted cleaning agents and washing apparatus. These changes would be consistent with changes the Commission recently made to the laundering requirements and would harmonize the laundering test procedure with other products covered by the FFA.

## **Regulatory language**

The changes in the regulatory language are necessary to address changes in consumer care practices and facilitate manufacturer compliance. They also simplify descriptions and harmonize terminology as suggested by some comments. The changes are also similar to procedures used in the current industry voluntary standard.

The suggested revisions continue to segment fabrics into the three broad flammability classes of the standard: normal flammability (Class 1), intermediate flammability (Class 2), and rapid and intense burning (Class 3). The staff's suggested amendments would specify the types of textiles that fall within each class, but would not change the requirements of each class, nor would it change the test criteria for inclusion in each class.

## **Dry cleaning and laundering requirements**

The procedures for clothing textiles testing require that clothing textiles are subjected to a surrogate dry cleaning prior to laundering. The current Clothing Textile Standard requires testing fabrics in open containers using perchloroethylene (PERC) as the cleaning solvent. The EPA published a final rule, "National Emission Standards for Hazardous Air Pollutants for Source Categories; Perchloroethylene Dry Cleaning Facilities" (September 22, 1993), which bans the use of PERC in open containers. The staff's suggested amendments would allow the use of a standard commercial dry cleaning procedure using closed commercial dry cleaning equipment.

For the laundering procedure, the revisions would allow for testing using current home washing and drying apparatus. The current standard also requires line-drying, rather than the use of home clothes dryers. The staff's changes reflect the evolution in home laundering equipment (including automatic clothes dryers) since the standard was promulgated in 1953. The changes are consistent with current industry practices, as reported by comments to the ANPR.

The revisions also would change the “standard reference” laundry detergent used in flammability testing. The original detergent requirement specified the use of a neutral chip soap. Neutral chip soap is no longer commercially available for use by consumers for home laundering. Current detergents offered for sale to consumers are non-phosphate powders and liquids. In 1993, the American Association of Textile Chemists and Colorists (AATCC) developed a non-phosphate “standard reference” detergent; it is common industry practice to use the non-phosphate detergent in General Wearing Apparel flammability testing. The amendments would update the standard to correspond to current industry practice.

## **REQUIREMENTS OF THE ACT**

The FFA requires that the Commission provide a preliminary analysis of a proposed rule during development of the notice of proposed rulemaking. This preliminary analysis must contain:

- a description of the potential benefits and costs of the proposal;
- a discussion of the reasons any existing or potential voluntary standard should not be the basis for the proposal; and
- a description of any reasonable alternatives to the proposal.

Additionally, under the Regulatory Flexibility Act of 1980 (RFA), the Commission is required to address the potential economic effects of a proposed rule on small businesses and other small entities. Also, under the National Environmental Policy Act (NEPA), the Commission is required to consider the potential environmental effects of the proposed rule.

### **Potential Benefits and Costs**

Any benefits of the standard would accrue through a reduction in injury and death associated with clothing ignition. However, the staff’s suggested amendments simply codify existing industry practices, and would not materially affect the types and classes of textiles (or garments) available for consumer use. Consequently, we do not anticipate any change in injuries

or deaths due to this revision. Therefore, these amendments would not result in any additional expected benefits associated with the General Wearing Apparel Standard.

Similarly, the staff's suggested amendments are not expected to increase costs to manufacturers. Any increased costs that would have been incurred were already borne by manufacturers when they voluntarily initiated the test modifications which would be called for under the revisions. No additional testing or recordkeeping requirements are contemplated as a result of the proposed amendments. Again, these amendments simply codify the current industry practices. If anything, these revisions may reduce the industry burden since they modify requirements that are outdated and impossible to comply with and, in some cases, are illegal.

### **Existing Voluntary Standards**

Staff is aware of one voluntary standard nearly equivalent to the General Wearing Apparel Standard: ASTM D-1230, Test Method for Flammability of Apparel Textiles. Information available to staff indicates that ASTM used the existing FFA standard and updated it using the ASTM format. While some of the language used may be different than that of the staff's suggested amendments (the revision provides more in-depth definitions), the testing requirements of the ASTM standard are equivalent to those of the proposed amendments.

There is also a voluntary standard for clothing textile washing procedures, AATCC Test Method 124-2001, the most recently updated version of its testing requirements. This procedure is identical to the laundering procedures outlined in the staff's suggested amendments to the standard.

There is also an extant ISO voluntary standard for clothing textiles. However, this standard is confined to dry cleaning procedures rather than the more extensive testing required by the FFA.

## **Alternatives**

The Commission may choose to use the ASTM standard as a template for the proposed amendments. The ASTM standard is a recent update (2001) of the FFA regulations promulgated in 1953. This option would harmonize the voluntary standard with the mandatory FFA standard. However, staff considers the more extensive definitional language of its suggested amendments to be more complete and more easily understood than that of the ASTM standard, since ASTM followed an organizational format different from that which the Commission may consider appropriate.

Another option may be to use the test procedures outlined in the ASTM standard, combined with the definitional content of the staff's suggested amendments. While each of the options is likely to result in equivalence with the current General Wearing Apparel standard, staff believes that the detail of its suggested amendments could address the potential for confusion and misclassification of clothing textiles by the industry.

## **Regulatory Flexibility Act**

The RFA requires that the Commission consider whether a proposed rule would have a significant effect on a substantial number of small entities, including small businesses and small government entities. Based on available information, there would be little or no effect on small businesses in the textiles and apparel industries, since the staff's suggested amendments are technical in nature and update the FFA standard to reflect current industry practices. Since the test procedures are consistent with the FFA standard, the results of the tests should be the same. Subsequently, the Commission could conclude that there are no expected economic consequences on a substantial number of small entities.

## **National Environmental Policy Act**

Under NEPA, there are requirements that the Commission consider the potential environmental impact as the result of a proposed rule. Since the staff's suggested amendments continue current industry practices, staff expects no negative environmental impact as a result of the proposal.

The suggested amendments are not expected to have an impact on the production processes developed by manufacturers. There is also no expected impact on the amounts of materials used in manufacture, packaging or labeling. It would not render existing finished goods inventories, or works in progress, unsellable, or require destruction of these products.



# TAB G

666701 (11/15)



United States  
CONSUMER PRODUCT SAFETY COMMISSION  
Washington, D.C. 20207

MEMORANDUM

TO : ES  
Through: Todd A. Stevenson, Secretary, OS  
FROM : Martha A. Kosh, OS  
SUBJECT: ANPR to Amend the Standard for the Flammability of Clothing Textiles, 16 CFR Part 1610

DATE: November 12, 2002

ATTACHED ARE COMMENTS ON THE CF 03-1

<u>COMMENT</u>	<u>DATE</u>	<u>SIGNED BY</u>	<u>AFFILIATION</u>
CF03-1-1	09/30/02	Jessica McBurnett	2101 Chatsworth Blvd, #10 San Diego, CA 92107
CF03-1-2	10/01/02	Melissa Niednagel	Flex Housing 3900 Lomaland Dr. San Diego, CA 92106
CF03-1-3	10/09/02	Adam R. Varley Technical Director & Co-Founder	Vartest Laboratories, Inc., 19 West 36 <sup>th</sup> St, 10 <sup>th</sup> Floor New York, NY 10018
CF03-1-4	10/09/02	Sally Hasselbrack Ph.D., Boeing Sr. Tech. Fellow & Lana Berry, B.S. Staff Engineer	Boeing <a href="mailto:sally.a.hasselbrack@boeing.com">sally.a.hasselbrack@boeing.com</a>
CF03-1-5	10/15/02	Monona Rossol Health & Safety Director	United Scenic Artists Local 829 (IATSE) 181 Thompson St, #23 New York, NY 10012
CF03-1-6	10/15/02	Erin Ramsey	3900 Lomaland Dr. Flex Housing #45D San Diego, CA 92106
CF03-1-7	11/01/02	Ronald Pacheco Tech. Director	Specialized Technology Resources, Inc. 10 Water Street Enfield, CT 06082

ANPR to Amend the Standard for the Flammability of Clothing  
Textiles, 16 CFR Part 1610

CF03-1-8	11/11/02	Patty Adair Assistant Vice President	American Textile Manufacturers Institute 1130 Connecticut Ave, NW Suite 1200 Washington, DC 20036
CF03-1-9	11/12/02	James Hoebel	13506 Star Flower Court Chantilly, VA 20151
CF03-1-10	11/12/02	Mark Rose Vice President	The Children's Place 915 Socaucus Road Socaucus, NJ 07094
CF03-1-11	11/12/02	Philip Wakelyn Sr. Scientist	National Cotton Council of America 1521 New Hampshire Ave, NW Washington, DC 20036
CF03-1-12	11/12/02	John Biechman Vice President	National Fire Protection Association Suite 210 1110 N. Glebe Road Arlington, VA 22201
CF03-1-13	11/12/02	Steven Spivak PhD	6301 Beachway Drive Falls Church, VA 22044
CF03-1-14	11/12/02	Daniel Crane	Campbell Crane & Assoc. 1010 Pennsylvania Ave, SE Washington, DC 20003
CF03-1-15	11/12/02	Tammie Rollins Manager, Specialty Testing	Consumer Testing Laboratories, Inc. Softlines Testing Lab. 2713 SE Otis Corley Dr. Bentonville, AR 72712
CF03-1-16	11/12/02	Rachel Subler Manager of Government Relations and Communications	American Apparel and Footwear Association 1601 North Kent St. Suite 1200 Arlington, VA 22209
CF03-1-17	11/12/02	Allison Baron On behalf of The Fashion Accessories Association	Sharretts, Paley, Carter & Blauvelt, P.C. 1707 L Street, NW Suite 725 Washington, DC 20036
CF03-1-18	11/18/02	Donald Bliss President	National Association of State Fire Marshals 1319 F St, NW Suite 301 Washington, DC 20004