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

MEMORANDUM

DATE: August 23, 2005

TO : ES

Through: Todd A. Stevenson, Secretary, OS

FROM : Martha A. Kosh, OS

SUBJECT: Advance Notice of Proposed Rulemaking; Possible Revocation or Amendment of Standard for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition)

ATTACHED ARE COMMENTS ON THE CF 05-3

COMMENT	DATE	SIGNED BY	AFFILIATION
CF 05-3-1	8/10/05	Frank Foley President	Home Fashion Products Assoc 355 Lexington Ave. New York, NY 10017
CF 05-3-2	8/11/05	John Biechman Vice President Gov't Affairs	Nat'l Fire Protection Assoc 499 South Capitol St, SW Suite 518 Washington, DC 20003
CF 05-3-3	8/15/05	Alvin Klancnik	Serta International 5401 Trillium Blvd. Suite 250 Hoffman Estates, IL 60192
CF 05-3-4	8/17/05	James Burns President	Nat'l Assoc. of State Fire Marshals 1319 F St, Suite 301 Washington, DC 20004
CF 05-3-5	8/22/05	Todd Hunter	Illumination International 3591 12th Ave Port Alberni, B.C. Canand V9Y 4Z9
CF 05-3-6	8/22/05	Michael Murray Legal Counsel	Sealy, Inc. One Office Parkway Trinity, NC 27370
CF 05-3-7	8/22/05	Mike Slavik Vice President	Ventex P.O. Box 1038 Great Falls, VA 22066

Advance Notice of Proposed Rulemaking; Possible Revocation or Amendment of Standard for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition)

CF 05-3-8	8/22/05	Ryan Trainer Executive Vice President &	Internat'l Sleep Products Association Dbright@sleepproducts.org
CF 05-3-9	8/23/05	Ganesh Rao Manager Gov't Affairs	Underwriters Laboratories 1850 M St, Suite 1000 Washington, DC 20036
CF 05-3-10 **Rec'd 8/25**	8/22/05	Dr. M. Hirschler	GBH International 2 Friar's Lane Mill Valley, CA 94941
CF 05-3-11	8/22/05	Brian Stiger Chief	Bureau of Home Furnishings and Thermal Insulation 3485 Orange Grove Ave. North Highlands, CA 95660
CF 05-3-12	8/25/05	Phillip Wakelyn Sr Scientist Environment, Health & Safety	National Cotton Council 1521 New Hampshire Ave. Washington, DC 20036

HOME FASHION
PRODUCTS ASSOCIATION

355 LEXINGTON AVENUE

NEW YORK, N.Y. 10017-6603

TELEPHONE: (212) 297-2122

FACSIMILE: (212) 370-9047

August 10, 2005

BY E-MAIL AND FACSIMILE

Office of the Secretary
U.S. Consumer Product Safety
Washington, DC 20207-001

Attn: Todd Stevenson, Secretary

Re: Mattress ANPR (Cigarette Ignition)
Possible Revocation or Amendment of Standard
For the Flammability of Mattresses and
Mattress Pads
70 Federal Register 36357 (June 23, 2005)

Dear Mr. Stevenson:

The Home Fashion Products Association, Inc., headquartered in New York, New York (hereafter "HFPA"), is a national, non-profit organization dedicated to advancing the common interests of the home fashions products industry through a variety of programs and activities. The membership encompasses over 60 manufacturers and suppliers of filled bedding products, window treatments, bath & bed décor, drapery and upholstery fabrics, kitchen textiles, table linens and related accessory classifications.

HFPA is very concerned about deaths resulting from home fires. The loss of even one life is tragic. The good news is that the nationwide number of deaths from home fires and bedroom fires has been decreasing each year. HFPA believes that this trend will continue, with heightened consumer awareness and fire safety education, and regulation of direct fire sources.

We understand that the CPSC's Advanced Notice of Proposed Rulemaking ("ANPR") requests comments on whether to continue the cigarette ignition test requirements for mattresses once the open flame testing standards take effect. HFPA

members manufacture bedding ("bedclothes") and do not as a rule manufacture mattresses. However, we believe that it is worth commenting that before any ANPR addressing the flammability of mattresses, mattress pads or bedding continues to progress closer to a Final Rule, home fire data should be brought up to date and fully analyzed.

The CPSC should obtain and study current data on home fires, causes and resulting injuries and deaths. Changes in consumer awareness, smoke alarms and habits make it imperative that new data be used in evaluating the fundamental premises for any regulation. The CPSC indicates that the data used to measure risk of injury was compiled from 1995-1999. That data is five and half years old, and does not reflect the decline in home fires each year since 1998 to the present.

Conclusion

Therefore, HFPA requests that consideration of any proposed rule regarding testing methods or ignition sources be suspended until the data on the causes of home fires is brought up to date and thoroughly analyzed.

If you have any questions, please do not hesitate to contact us at (212) 297-2122.

Sincerely,

Frank Foley
President

Mattress

Stevenson, Todd A.

From: Cadet, Tina [TCadet@kellencompany.com]
Sent: Wednesday, August 10, 2005 3:46 PM
To: Stevenson, Todd A.
Cc: Rand, Lisa
Subject: CPSC ANPR on cigarette ignition test

BY E-MAIL AND FACSIMILE

Office of the Secretary
U.S. Consumer Product Safety
Washington, DC 20207-001

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If you have any questions, please do not hesitate to contact us at (212) 297-2122.

Sincerely,

Frank Foley, President

National Fire Protection Association

Washington Office, 499 South Capitol Street, SW, Suite 518, Washington, DC 20003
Phone: 202-488-4428 • Fax: 202-488-4452 • www.nfpa.org

August 11, 2005

Office of the Secretary
U.S. Consumer Product Safety Commission
Washington, D.C. 20207-0001

RE: Mattress ANPR (Cigarette Ignition)
16 CFR Part 1632

Dear Mr. Secretary:

I am writing on behalf of the National Fire Protection Association (NFPA) to comment on the advance notice of proposed rulemaking (ANPR) published in the ***Federal Register***, June 23, 2005 in which the Consumer Product Safety Commission ("CPSC") announced it is considering revoking or amending its existing cigarette ignition standard for the flammability of mattresses and mattress pads (16 CFR part 1632). We appreciate this opportunity to comment on the ANPR.

The National Fire Protection Association (NFPA) opposes the revocation of the existing cigarette ignition standard for mattress flammability. This standard is not made redundant by the proposed new standard, because the fire deaths affected by the two standards are substantially different.

The existing requirement is designed to prevent ignition of mattresses by a small, smoldering heat source, typically a cigarette. Therefore, the fire deaths targeted by this requirement – and prevented when it works as intended – are nearly all fire deaths in which a lighted tobacco product ignites a mattress.

The proposed requirement is designed to assure that a mattress, if ignited, will produce a less threatening fire, as measured by the speed of growth in intensity and the peak value of the intensity. Therefore, the fire deaths targeted by this requirement – and prevented when it works as intended – would be fire deaths involving a larger fire and a victim who would not have been fatally injured by a smaller fire.

Both requirements may have some effect on fire deaths involving initial ignition of bedding, because mattresses and bedding operate like a system in promoting or retarding fire development to and past the self-sustained burning stage. These effects have not been considered in NFPA's analysis.

The attached table shows the annual average number of home fire deaths involving initial ignition of a mattress, separating smoking-material vs. non-smoking-material heat sources, fires that do and do not have flame extension beyond the room of origin, and victim locations coded

as intimate with ignition, not intimate but in the room of fire origin, and outside the room of fire origin.

The existing requirement is designed to address the smoking-material ignitions. These account for 120 fire deaths a year, based on 1994-1998 data (national estimates based on the National Fire Incident Reporting System (NFIRS) as calibrated by the NFPA survey, with all unknowns proportionally allocated). (More current data is available but does include all the coding detail used below in the analysis, such as the detail on victim location.)

The proposed requirement is most likely to save victims who were not in the room of fire origin but were killed by a fire with flame extension beyond the room of fire origin. There were 65 fire deaths per year with those characteristics in 1994-1998, of which 28 per year involved smoking-material ignitions. (See bold numbers in attached table.)

The proposed requirement could also save victims who were not in the room of fire origin but were killed by a fire with no flame extension beyond the room of fire origin. There is greater uncertainty because this fire is already somewhat contained in size. Also, the proposed requirement could save victims who were in the room of fire origin, but not intimate, and were killed by a fire with flame extension beyond the room of fire origin. There is uncertainty because even a smaller fire might have been large enough to kill victims this close to the point of fire origin. In combination, these two conditions accounted for 38 home mattress fire deaths per year in 1994-1998, of which 22 per year involved smoking-material heat sources. (See italicized numbers in attached table.)

The proposed requirement could not be expected to save any of the 63 victims per year who were intimate with ignition, including the 52 intimate victims per year who were killed by smoking-material ignitions and who could be saved by the existing requirement. The proposed requirement could not be expected to save the 35 victims per year who were in the room of origin, but not intimate, and who were killed by a fire that was already confined to the room of fire origin, including the 18 victims per year who were killed in this way by smoking-material ignitions and who could be saved by the existing requirement.

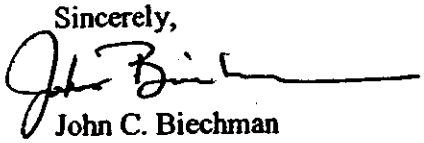
NFPA estimates, therefore, that the two requirements in combination would target 157-173 fire deaths per year of the 202 total home mattress-fire deaths, or about 75-85% of the total problem. The existing requirement alone would target the 120 fire deaths per year in fires started by smoking materials, or about 60% of the total problem. The proposed requirement alone would target 65-103 fire deaths per year, or about 30-50% of the problem. Revoking the existing requirement would remove the only controls designed to address 70-92 fire deaths per year, or about 35-45% of the total problem.

In fact, the negative impact of revocation would likely be far worse, because this data reflects the positive effects of the existing requirement, which predates the oldest NFIRS data available. Deaths that are now being prevented through the existing requirement's suppression of the rate of smoking-material mattress fires would now reappear and these numbers could dwarf the numbers cited in this analysis.

This shows that revocation would have a large, negative impact on our ability to reduce and minimize a significant number of fire deaths. The proposed requirement is better seen as an enhancement to the existing requirement than as an effective replacement for it.

Again, thank you for the opportunity to comment on the ANPR. We hope that the comments will assist you in your efforts to protect US consumers. Please feel free to contact me if I can be of any further assistance.

Sincerely,



John C. Biechman
Vice President
Government Affairs

Attachment

Home Fire Deaths Involving Ignition of Mattress as Item First Ignited
Annual Average of 1994-1998 Structure Fires Reported to U.S. Fire Departments
Unknowns Allocated

A. Smoking Material (Lighted Tobacco Product) is Heat Source

	Final Extent of Flame Damage		
Victim Location	**Confined to Room of Fire Origin**	**Beyond Room of Fire Origin**	**Total**
Intimate with ignition	25	27	52
In room of fire origin, but not intimate with ignition	18	*14*	33
Outside room of fire origin	*8*	28	36
Total	51	69	120

B. Heat Source is Not Smoking Material (Lighted Tobacco Product)

	Final Extent of Flame Damage		
Victim Location	**Confined to Room of Fire Origin**	**Beyond Room of Fire Origin**	**Total**
Intimate with ignition	5	7	11
In room of fire origin, but not intimate with ignition	17	*11*	28
Outside room of fire origin	*5*	37	42
Total	27	54	82

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies. National estimates are projections and can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Deaths are rounded to the nearest one. Sums may not equal totals because of rounding errors.

Source: NFIRS and NFPA survey.

WE MAKE THE WORLD'S BEST MATTRESS.™

August 15, 2005

Office of the Secretary
Consumer Product Safety Commission
Room 502
4330 East-West Highway
Bethesda, MD 20814

Re: Mattress ANPR (Cigarette Ignition)

Serta International welcomes the opportunity to comment on the ANPR for revision or modification of 16 CFR part 1632, as published by the CPSC in the Federal Register on June 23, 2005 in Vol. 70 No. 120 36357.

Serta, in all of its 26 domestic factories, has complied with part 1632 since its inception in 1973. During this time, Serta engineers have actively researched how to expand and improve mattress fire safety in both high-risk and residential bedrooms. In late 2003, Serta began converting all of its retail production to mattress designs compliant with California Technical Bulletin 603. Serta completed this national conversion in January 2005 even though not required by any regulation outside of California. Serta was the only national mattress manufacturer to do so.

Based on our experience in testing all of our designs to both the cigarette standard and the California open-flame standard, we believe the cigarette standard will be redundant and therefore unnecessary, once total conversion to 603 designs are complete. This is because compliance with 1632 was met by replacing smolder-prone organic fibers with smolder-resistant polyurethane foams and polyester fibers as the upholstery materials in mattress products. These same smolder-resistant materials continue to be used but are now covered by open-flame resistant barrier products. Our experience has shown the barriers we use, and barriers we have not used but have evaluated, do not exhibit smoldering characteristics when used in mattresses.

Examination of both the CPSC in-depth study of bedroom fires in 1994 and 1995 and the 1997 report from SPSC/NASFM study "Wide Awake" seem to show several interesting points on the cigarette ignition of mattresses. Both studies indicate that the cigarette ignitions were first on the bedclothes, not on the bare mattress. This leads us to believe a fire-resistant standard for mattresses and bedclothes will have a synergistic effect which will result in additional reductions in large fire incidents.

Serta Mattress Company · *A Division of National Bedding Company, LLC*
5401 Trillium Blvd. · Suite 250 · Hoffman Estates, IL 60192 · *Phone* 847.645.0200 · *Fax* 847.645.0205

Therefore when the 1633 and 1634 standards become effective, 1632 can be safely rescinded. The single exception should be mattress pads, unless they would be interpreted as falling under either of the two new regulations.

Serta International would further be willing to participate with CPSC to explore these opinions and comments or to do further research into the data and observations related to them.

Sincerely,

Alvin R. Klancnik
Serta International
5401 Trillium Blvd. Suite 250
Hoffman Estates, IL 60192
Direct phone 847 747 0808
Email aklancnik@sertanational.com

NATIONAL ASSOCIATION OF STATE FIRE MARSHALS
Executive Committee

August 17, 2005

Office of the Secretary
U.S. Consumer Product Safety Commission
Washington, DC 20207-0001

RE: Mattress ANPR (Cigarette Ignition)

The members of the National Association of State Fire Marshals (NASFM) comprise senior, state-level, public safety officials. NASFM's mission is to protect life, property and the environment from fire and other hazards. The comments presented here were prepared in consultation with NASFM's Science Advisory Committee (SAC), whose members are listed on the attached page.

In the above-referenced notice, the U.S. Consumer Product Safety Commission (CPSC) has indicated its interest "in revoking or amending its existing standard for the flammability of mattresses and mattress pads (16 CFR part 1632)," given comments from mattress producers that continuing to test their products against the cigarette ignition standard would be "burdensome and unnecessary" in light of the Commission's proposed open flame ignition fire performance standards for mattresses.

NASFM concurs that the two standards taken together may be administratively burdensome to some mattress producers. However, this is a fact the mattress industry understood and apparently accepted when its trade association, the International Sleep Products Association, and its research and education adjunct, the Sleep Products Safety Council, initiated the research project that led to California Technical Bulletin 603 (TB 603). Whether the current cigarette ignition standard is "unnecessary" is a matter of public safety and will require considerably more data before such a conclusion can be drawn with any confidence.

NASFM's position on this proposal can be summarized in the following points, which highlight the premature nature of any action to revoke the current cigarette standard for mattresses:

- Any Commission action at this point to rescind the current cigarette standard would be speculative in terms of the impact on public safety. Currently, a federal standard for open flame ignition of mattresses doesn't exist. Therefore, this proposal does not appear to make sense, because it potentially eliminates a standard addressing one combustion hazard without having the new standard implemented.

The two standards differ in many ways, but the most significant difference is the fact that the open flame standard presumes ignition, while the cigarette ignition forbids it. If the existing cigarette standard is rescinded, small but persistent cigarette-ignited fires may occur, generating quantities of carbon monoxide and other highly toxic gases that could kill without ever reaching flashover. The cigarette standard should not be rescinded without some better understanding of the implications of this action.

- The mechanism of smoldering and flaming fires is quite different. Significant fire research over the past 30 years has clearly shown that flame-resistant materials and products are not necessarily smolder resistant, and vice-versa. The application of a flame retardant chemical to a material, for example, may not prevent easy ignition of that same material by a smoldering source such as a cigarette. Conversely, many materials are inherently smolder resistant, but are extremely flammable when ignited by even a small flame – thermoplastic fibers are typical examples.

- Innovative new fire blocking and barrier technologies are still emerging and may not perform well in preventing cigarette ignitions of mattresses. The industry says manufacturers selling in California automatically comply with the federal smoldering standard. However, hundreds of manufacturers are not selling in California, and nobody yet knows how they will be able to comply with a standard, or what technologies they might use to achieve compliance.

  At this point, we may know that certain fire blocking systems will provide good protection from both hazards. As alternative barrier materials are developed and used, can we have that same assurance? Just a few years ago, mattress producers had legitimate concerns that the technologies addressing open flame ignitions might increase the risk of smoldering ignitions. Fortunately, the first generation of new materials appears to have resolved that problem.

  Many different ways already exist to comply with California's TB 603 – with more being developed all the time. There is no scientific basis to conclude that other practical technologies that could feasibly be used to meet an open flame requirement would ensure that cigarette ignition resistance would be maintained. Until we have a better sense of how these new technologies perform under both tests, a proposal to end the smoldering standard is surely premature and appears to be very risky. The array of available solutions will become smaller and better known through competition, and as mattress producers become comfortable with solutions. Once the industry has pinpointed the best solutions, the Commission can begin considering the end of the cigarette standard.

- Unless and until the CPSC issues a bedclothes rule that addresses ignition of mattress pads by both open flame and cigarettes, the revocation of the federal cigarette ignition standard, which also applies to mattress pads, is premature and possibly dangerous. Given that mattress pads run the gamut from "thin, flat mats" to thick foam "egg crate" designs, the federal cigarette ignition standard currently represents the only assurance that these potentially highly flammable products are resistant to any form of ignition. NASFM believes these products should be included in the open flame bedclothes rulemaking that the CPSC has initiated. The Association cautions that assuming mattress pads that pass an open flame standard will also automatically pass a smoldering ignition standard may be premature. The CPSC needs to make sure these products pass both tests.

Regarding any changes to the current standard, NASFM would suggest the following:

- Changes in cigarettes may require a modification of the existing cigarette ignition standard for mattresses to ensure that the safety benefit of the federal standard is not negated. The State of New York currently requires cigarettes to meet "lower ignition strength" standards. Vermont has recently passed similar legislation, and numerous other state legislatures are considering the measure, as well. Until each state has "lower ignition strength" legislation or the industry starts manufacturing only these types of cigarettes, these new products shouldn't be used in the federal cigarette ignition test for mattresses. Using the "lower ignition strength" cigarettes to test mattresses increases the chances that less fire-resistant materials would pass the standard and be allowed onto the market, and the net effect on fire losses would be zero. NASFM understands that the CPSC, in coordination with the National Institute of Standards and Technology, the California Bureau of Home Furnishings and Thermal Insulation and industry, has developed a surrogate (cotton rope) for the standard cigarettes used in the federal mattress test to ensure that test results are not compromised by changes in the ignition strength of commercial cigarettes. NASFM urges the CPSC to modify its testing requirements to include the surrogate.

Thank you for the opportunity to comment on this ANPR.

Sincerely,

James A. Burns

James A. Burns
President

Attachment

cc: NASFM Board of Directors
NASFM SAC

Members
National Association of State Fire Marshals
Science Advisory Committee

Margaret Simonson, Ph.D., *Chair*
Head of Fire Protection Section, Swedish National Testing and Research Institute

John C. Dean, *NASFM Vice President and NASFM Board Liaison to the SAC*
Maine State Fire Marshal

John M. Watts, Jr., Director
Fire Safety Institute

Henry J. Roux, President
Roux International, Inc.

James F. Hoebel, Chief Engineer for Fire Safety (Ret.)
US Consumer Product Safety Commission

Gordon H. Damant, Director
Inter-City Testing & Consulting Corporation

William L. Grosshandler, Ph.D., Chief, Fire Science Division
National Institute of Standards and Technology

Steven Spivak, Ph.D., Chair Emeritus of Department, Fire Protection Engineering
University of Maryland

Geoffrey N. Berlin, Ph.D., Mathematician, Decision Support Consultant

S. D. Christian, Ph.D., Professor Emeritus
University of Ulster, United Kingdom

5

MATTRESS ANPR
(Cigarette Ignition)
COMMENTS

Advanced Notice of Proposed Rulemaking

16 CFR Part 1632

Possible Revocation or Amendment
of Standard for the Flammability
of Mattress and Mattress Pads

August 18, 2005

Contact Person

Attention: Margaret Neilly
Directorate of Engineering Sciences
Consumer Protection Safety Commission
e-mail: cpsc-os@cpsc.gov
Tel: 301-504-0800
Washington, DC, 20207

Prepared By:

Illumination Fire Protection Int'l Inc
3591 12th Ave
Port Alberni, BC,
Canada, V9Y 4Z9

Todd Hunter
CEO, Chairman and Director
1-800-605-4601
e-mail: illuminationth@yahoo.ca
Web Site: www.firebarriersystems.com

Risks and Injuries;

The statistics that the U.S. Fire Administration data is comprehensive and points out how needless loss of life and property is consumed each year by mattress or bedclothing fires. This is further testified by the numerous reports written by the National Fire Marshal's Association, the International Sleep Products Association, National Fire Protection Agency, Bed Times, and other specialists to the Fire Protection Industry like Chairman of "Consumer Product Safety Task Force of the National Association of State Fire Marshals" - Robert Polk, and Gordon Damant (formerly Chief of California Bureau of Home Furnishings). It would be senseless to continue to point out that there are close to 450 lives lost per year for the last 10 years. That is twice as many as who died in 911, which is shocking indeed. But we always need to be reminded of is the loss of life and it's impact on loved ones.

While the facts speak for themselves that 2670 deaths and injuries and $273 million in property damages result from mattress fires alone in five years, the Flammable Fabrics Act has been around since 1953, for some 52 years with life and property loss continuing. Since then technology has progressed in many fields in the fire protection industry in both fire retardant material(s) and coatings. While the technology has advanced, - loss of life and property is still very significant, what is the problem? How can we reduce the loss of life and property by fire in mattresses? There is no doubt that law will play a significant role in this. Law is only a means to end and a continuing adherence to the law through law code enforcement officials.

While safety should main our main objective it is important to consider the need to use materials that do not induce toxic smoke, flashover and flame in mattress or bedding construction. While the entrepreneurs, manufactures and scientists have reasons to claim great victory with advanced technology in mattress ticking, products that contribute to the loss of life, should be seriously considered as part of a ban and as they are *part* of the equation of unnecessary death and injury.

While man made products tend to be more durable and less expensive we must consider their role in safety in the use of home furnishing, fabric or mattress, and bedding manufactured materials. Another factor to be considered is the life styles of the consumers and what they are accustomed too. It is noted in many reports that toxic smoke kills most people in mattress fires. But would it be wise to use these if they contribute a significant role in loss of life and property? Therefore oil-based fibers such as nylon and polypropylenes while being very durable and inexpensive are also extremely flammable. See – Methods to Identify Smolder Prone Materials below

Standard Submission

It has been noted that the current Cigarette Ignition standard would be burdensome or unnecessary. While the California Bureau of Home Furnishings has adopted a rather 'all-encompassing' testing procedure using large and high heat release flames the Bureau has also paid attention to the ***heat release*** during the testing procedure. In comparison to the new proposed open flame standard new fire barrier material technology withstands not just cigarette burning or smoldering but also very high temperature heat source applications.

What is important for any fire retardant barrier is that it does just what the name means. It should retard the fire. There is no such thing as 'fire proof' even as metal when heated to high enough temperatures will melt. Take for example when fabric materials and other substances at the former World Trade Centers in New York and just collapsed when airplane fuel and materials contributed to weakening the metal structure *by intense heat*. This clearly demonstrates that nothing is really 'fire proof.' So within the context what is more important is the ability to retard or slow down fires, giving occupants the a much longer time to escape or as some fire barriers have demonstrated stopping the fire from spreading and eventually going out.

Where possible the reduction of the total heat release during testing procedures to a maximum of 15 mega joules within the first 10 minutes and not exceeding 200 kilowatts in 30 minutes will easily attain the goal of most fire barriers and slow down the fire or simply put the flame out. This in turn will slow down if not stop, flashover. The amount of heat released from any test procedure with less than 15 mega joules should reduce the mega joule heat release rate thus limiting the spread of flame and heat which in turn causes more fire and toxic smoke and flashover.

Furthermore while cigarettes are definitely a major cause of fire mattresses, flame sources from lighters, matches, and candles can also cause ignition to certain materials that leads to flashover. Heat sources from both the latter sources can be greater than cigarettes in certain cases. So using a much more larger heat source as with the California's Technical Bulletin's 603 procedure with 2 burning fire jets at 72 – 77 °F, will significantly increase the ability to ignite any material(s) or fabrics on mattresses. Placing the two fire jets between the crevice of the foundation box and the top of a mattress, (if mattress top is quilted) will sufficiently tests all areas of a mattress, it being four sided. Flames at 72 – 77 °F temperatures are enough to ignite all ticking material.

It should be underscored here that some present California mattress makers are using old TB 603 tests on new mattresses built with new fire barriers from new or other suppliers. While these 'new supplier' materials will without a doubt pass TB 603 compliance it would be judicious to make sure that every time a mattress manufacturer changes fire barrier materials they must also test the new material with a newly constructed mattress with the flame retardant fire barrier. The intention should be not just to meet the letter of the law but the *intent of the law* and make sure that mattress manufacturers are meeting compliance with these new fire barriers and label them so.

This would ensure and address several concerns. We understand that many mattress makers take pride in their work and they are to be commended. However there are rumors that some are more concerned about meeting the law than really being responsible to it. With fire safety being so important they should act as *guardians* to the consumer. Mattress manufacturers should be correctly constructing their mattress with fire barriers and ensure that their employees pay careful attention to construction so mattresses do not contribute to fires. They must recognize that they have a moral issue and responsibility to deal with, just like fireman, who has the duty to save lives. Attaching a label doesn't ensure certification without building in *elements or mechanisms* to make sure they abide by the intent of the law.

While this new act is a bold and wise decision in saving lives and property, we as mattress and fire barrier manufactures need to take proper measures that our work will meet the highest standards to meet the law. For example it is indeed noble to make a law but will it be enforced? Take for example furnishing, drapes and carpet fire protection. Do they consistently meet high standards when they are cleaned and are there mechanisms to check to make sure they uphold the law? So while we applaud the pursuit of mattress fire barrier construction we need to make sure those high standards are continually met by all parties and make sure the laws protect the innocent with law and code enforcement officers.

Really critical to the overall process of the law is that this aspect of *meeting the intent* of the law, should not slow down the process of purpose of the law. There are many reputable companies in both mattress and fire barrier manufacturing with fine products and this law should be enacted as soon as possible.

Intention to Modify Standard(s)

As mentioned above the TB 603 Testing procedure Standard would reflect a much more superior testing method and manner of fire resistance over the present cigarette ignition mattress testing standard.

While mattress protection is a critical step in the forward progress of home furnishing fire safety it should be noted that most fires will start in bedclothing or on bedding. While the intent of this report is to target mattresses we would not want to fail to miss the mission that bedclothing and /or bedding should also be another means to reduce life and property destruction. Thus it goes without saying, that the new proposed 'Bedding' law should be considered with equal strength to modify standards as part of the big picture of home furnishing fire safety with the new proposed open flame standard.

Further Information

Modification of Cigarette Ignition

It would seem reasonable to replace and adopt the mattress Cigarette Ignition Test with California TB 603 Standard as the above discussion bears witness to the technical basis for such assertions.

Methods to Identify Smolder Prone Materials

While smoldering is a problem in times past, new cloth barrier materials have a strong resistance to high heat or flames and will not allow fire to penetrate the inner core and center of mattresses where a more serious concern for smoldering and flashover will occur.

What has been demonstrated by the TB 603 testing standard, is that when a smoldering fire is ignited (at the beginning of the test) unlike the mattress ignition test, the flame which ignites the mattress under the TB 603 standard could take as long as 30 minutes to spread completely all over the mattress. This is due to the ability of new fire resistant fire barriers construction. With this new fire barrier layer inserted underneath the ticking, smoldering in the interior will not ignite as the fire can not pass through the barrier. This clearly demonstrates while smoldering or a creeping small flame may occur fire barriers, will not permit a heat release rate generated of more than 15 mega joules, thereby not contributing to smoldering, flames and flashover.

However as for identifying smoldering materials that are prone to 1) catch fire, 2) smolder, or 3) creep along mattress surfaces, it can be noted that oil based fibers, such as man made fibers such as high percentage (100% - 70% +) nylon, polyester, polypropylenes and similar materials/fabrics have a tendency to melt, turn into melting globs of material and in a burn victim situation, these globules and melted materials disfigure and maim as they melt into the flesh. So helping to identify these types of materials do not identify *fire contributors* when combined with the '*new fire barriers*' and the new proposed open flame standard but do help to identify the dangers of using such materials. As noted above there should be serious considerations to the banning of such materials construction of such high percentage of content rate so materials do not contribute to disfigurement.

Again, new fire barrier tested according to the TB 603 Testing Standards show that smoldering prone materials will not contribute to fires if compliance fire barriers are correctly installed.

Room Conditions and Material Combustion

Many materials inherently burn when subject to heat and a serious study of reducing percentages of material content of such man made fibers should be undertaken to reduce loss of life, disfigurement and property damage. This would in no way change the need for room conditions or material combustion as those compliance recognized *fire barriers* will not permit a fire to break out. Not unless a heat source like a burning fire is deliberately injected into the core or center of the mattress where cotton batting and polyurethane foam are ignited.

Retaining Cigarette Ignition

It appears that the 'Cigarette Ignition' testing standard would not be necessary. With the adoption of the California TB 603 test, this test makes it abundantly clear when any mattress meets compliance certification with a compliance fire barrier built into the mattress, pads, or futons that they are able to resist flame and fire in as much as they are subjected to heat sources that are not outside the scope or realm of super heated materials. ie Sept 11 situations.

In a nutshell that means that the mattress cigarette ignition test is no match for fire barriers that meet compliance certification. Unless there is another Sept 11 there is probably no product that is match for that kind of stress or heat source. The present California TB 603 testing standards are high enough to not need two sets of tests. TB 603 compliance certified fire barrier materials, either in man made flammable material or natural or man made fiber coated with an active coating agent are able to withstand most heat sources.

Costs to Perform the Cigarette Ignition Test

It has been the mission of Illumination Fire Protection Int'l Inc to make sure we meet a very high standard and threshold of flame resistance from various heat sources. Our active agent of fire retardant liquid meets the highest fire testing standards in the world. For this very reason and for environmental toxic issues the largest Entertainment Company in North America has consistently used our product for several years.

There has been no need to spend money on the Cigarette Ignition Test as our material meets many other higher fire code standards. Thus we have concerned ourselves with meeting the California Standard.

Concluding Comments

In behalf of Illumination Fire Protection Int'l Inc, I would like to thank you for the opportunity to participate in making and possibly changing the Fabric Flammability Act in view of saving lives, millions of dollars in destruction and untold suffering.

Water has been an instrument to put out fires from the beginning of man's history. More recently in the late 17th and 18th Century fire sprinklers and vehicles have been introduced. However in this 21st century technology has made significant advancement in the area of fire retardants.

Some major strides have been made to make residential and commercial buildings safer for living. We applaud the Fabric Flammability Act and the private sector and organizations that make this all possible. There are inventions within mankind's abilities that can greatly reduce fires. Fire Retardant paints and coatings for home and commercial furnishings, as well as specialized materials for materials outside a home and in certain work places are just some of these new inventions.

It is the responsibility of both the private sector and government to make sure that we protect ourselves to any sinister menace to society. It is well documented how fire causes billions of dollars in damages annually not only in the US and North America but earth wide. Again we applaud the Flammability Fabric Act for taking bold and unprecedented new steps to reduce the loss of life. While insurance may cover certain financial losses, it does not cover stress, loss of loved ones, disfigurement nor irretrievable memorabilia. The latter are more valuable than money.

So it is our perspective that we introduce a rounded out discussion on the matters, which could or could not make changes to law the way manufacturers build certain materials, - including home furnishings.

It is the mission of this company to help comply not only with the manufactured materials but also existing materials that will contribute to fire and it's destruction. We would like to see a new approach to the fire safety industry. We would like to work towards not only the manufacturers playing a role in manufacturing mattresses but also help home owners and all property owners to understand the abilities of a new generation of fire retardant surfaces. Laws and regulations already in place have indeed helped make this a reality for which we applaud the legal system.

The company wishes to take part in not only the new manufacturing end of new mattresses, furnishing and bedding, but make fire retarding possible to the public in general and already existing markets where no protection is available.

We have a coating that can be applied with specialized tools in the residential and commercial and manufacturing sectors. For this reason we encourage your department any all that are involved with the safety of home and commercial furnishings to help reform the traditional way of putting out fire. When the fire is already ignited and by dousing it with water causes only further untold damage rather than stopping fire in it's tracks or before it can ignite materials into flashover.

Todd Hunter
CEO, Chairman and Director of
Illumination Fire Protection Int'l Inc

Stevenson, Todd A.

From: Todd Hunter [illuminationth@yahoo.ca]
Sent: Monday, August 22, 2005 3:26 PM
To: Stevenson, Todd A.
Subject: ANPR OPEN FLAME STANDARD

Margaret Neilly;
Here is my comments for the new proposed mattress and mattress pads proposed ruling. I have also formatted a similiar set of comments for the NPR for bedclothes/bedding. Please see attachments.
Signed
Todd Hunter
CEO, Chairman and Director of
Illumination Fire Protection Int'l Inc

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August 22, 2005

Office of the Secretary
Consumer Product Safety Commission
Room 502
4330 East-West Highway
Bethesda, MD 20814

Re: **Sealy Inc.'s Comments on the Advance Notice of Proposed Rulemaking; Revocation of Standard for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition)**

Dear Secretary:

Thank you for providing us the opportunity to comment on the above-referenced Advance Notice of Proposed Rulemaking (ANPR) published by the Consumer Product Safety Commission (the CPSC) at 70 Fed. Reg. 36357 on June 23, 2005.

We support the CPSC's proposal to determine whether it is appropriate to revoke or amend the existing mattress cigarette ignition test required under existing 16 CFR Part 1632 (Part 1632), and we believe that for the reasons we present below, **Part 1632 should be wholly revoked as it relates to mattresses upon the adoption and first date of enforcement of the open flame standard currently proposed to be codified at 16 CFR 1633 (Part 1633).**[1]

The mattress industry as a whole and Sealy in particular have always been responsive and responsible corporate citizens especially when it comes to flammability rules and the federal standards regulating the safety of mattresses and boxsprings. In the early 1970s, when there appeared to be an increase in cigarette related house fires, which sometimes occurred in the bedroom, the industry helped design and draft a cigarette test and standard, shepherding in very rigorous regulations that affected mattress manufacturers, while other industry segments (not the least of which, the tobacco industry) resisted all regulations or openly fought them.

The requirements in the cigarette standard codified in Part 1632 challenged the then current state of the art in the bedding industry and forced Sealy and others in the mattress business to invest hundreds of thousands if not millions of dollars to comply and to make their mattresses resistant to burning cigarettes. While, at the time a necessary and worthwhile regulation, Part 1632 is now outdated, anachronistic and—upon the passage and enforcement of Part 1633—unnecessarily redundant, dangerous and burdensome.

[1] Sealy takes no position with respect to the standard as it addresses mattress pads and merely requests that the provisions of Part 1632 that affect mattresses be repealed.

Much has changed in the industry as well as in the United States in the ensuing 30+ years since the adoption and enforcement of Part 1632. Cigarette smoking generally has declined significantly, and due to appropriate education campaigns, smoking in the bedroom and in bed specifically, has decreased dramatically. Smoke detectors are more often the norm than the exception today. Consequently, smoldering cigarettes or other "closed" flames are often detected by the smoke detector before open flames erupt. Of course, due in large part to Part 1632 (and now proposed Part 1633), beds and ticking on beds are more impervious to smoldering cigarettes and such technical advances will continue with or without a cigarette standard.[2]

On the other hand, thicker and more luxurious bed coverings, pillows and comforters, along with more open flame risks in houses and bedrooms (such as candles) have made open flame risks more prevalent in the average US home and bedroom. In fact, even in those rare cases of a cigarette induced bedroom fire, it is extremely rare that a lit cigarette comes in direct contact with an unmade mattress, but instead ignites any number of products in the room, only ultimately causing an open flame to possibly come in contact with the mattress. Accordingly as one risk (cigarette flame) was successfully addressed by the mattress industry and the threat subsequently diminished, the industry prepared to tackle the next predominant risk (open flame). Only recently has it become possible to make mattresses that are **non-toxic**, marketable and capable of to some degree resisting an open flame.[3]

The industry—led by groups such as the SPSC , ISPA, major bedding brands as well as other mattress manufacturers and suppliers and with the assistance of the National Institute of Standards and Technology (NIST)—has spearheaded more stringent (and more real-world oriented) open-flame standards. As you are probably well aware, the industry has been diligently working with the CPSC to bring the latest open flame standard (codified at proposed 16 CFR 1633) to full regulatory and nationwide enforcement as early as January of 2007.

Part 1633 is an embodiment of, and testament to, the evolution of the industry and fire science. Part 1633's multiple strengths are also great indicators of the flaws of Part 1632.

The open flame burner and standard described in Part 1633 were developed by NIST scientists after numerous laboratory experiments disclosed the amount of heat and over what period of time the heat radiated on a mattress during a typical real world fire sequence. The test allowed manufacturers and suppliers to formulate safe insulators that can be incorporated into beds that are non-toxic, marketable and economically available to the large majority of the population. Such advances continue to be developed and will be generally available nationwide by the time Part 1633 becomes effective. Part 1632 now relies on antiquated and unsubstantiated science and even requires use of a nearly extinct cigarette brand (Pall Mall non-filtered) that may or may not burn similarly from cigarette to cigarette, from region to region and from climate (dry) to climate (more humid).[4]

In its draft provisions, Part 1633 acknowledges current design practices and allows for central design and testing of products. The drafters of Part 1633 correctly considered and

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[2] Many states are promulgating regulations for self-extinguishing cigarettes, which very shortly would provide another reason for abolishing Part 1632 as it relates to mattresses.

[3] We wish to reiterate that we believe our products, as well as virtually every general mattress product offered in the United States today, are safe and present no risk of harm to individuals. Nevertheless, as all consumer product manufacturers should always endeavor to do, we are constantly striving to make our products better and even safer for all users.

[4] While Part 1632 requires conditioning of mattresses, sheets and cigarettes, very little science is available to determine whether the conditioning time is appropriate and there is no guarantee that cigarettes manufactured and shipped in different regions of the country are consistent across the board.

anticipated use of modern production lots and quality control. The drafters recognized that each plant should not have to submit its products for testing when there is absolutely no evidence of inconsistencies or disparities from plant to plant.[5] Part 1632 was designed over thirty years ago and requires plant by plant testing of mattresses. **The requirements of Part 1632 are inefficient, unsafe and unhealthy.** All products made today at any major company's plants are centrally designed from unified specifications and come from suppliers that are likewise consistent from plant to plant and location to location. Showing its age, Part 1632 requires "six sleep surfaces" to be tested, only because the universal product design in the mid-1970's was for two-sided mattresses and thus the "six sleep surface" requirement guaranteed the testing of at least three beds. The more prevalent design today is for one sided mattresses and Part 1633 recognizes this shift.

Due to the "local plant" requirement of Part 1632, the test program is often undertaken at the plant where the product is made. Otherwise, the product has to be shipped to a far-away location, which can be very costly. This is especially difficult given that the product is supposed to be the first of the line for commercial sale. Accordingly, the test must be conducted quickly or the commercial run is delayed. Testing at a plant—especially for a smaller manufacturer—however, can be very dangerous. Regardless of how safe the end product may be, many components of a bed remain flammable by themselves. Therefore, an incorrectly administered Part 1632 test within a plant could lead to a massive fire, business interruption, property casualty and even loss of life. Limiting the location and number of tests allows manufacturers to centrally develop expertise and focus on the quality of tests rather than a regulatory-driven quantity. Product design will advance more quickly with centralized knowledge and more importantly, the risk of a fire or catastrophe at a less prepared plant will be extinguished by abolishing Part 1632 and its requirements of plant by plant testing.[6]

An incorrectly or shoddily conducted Part 1632 test could also expose workers to long-term health issues and unwittingly set up a conscientious mattress manufacturer for a costly (but perhaps frivolous) workers compensation claim or lawsuit in the event that an employee that conducts Part 1632 testing contracts lung cancer or other putatively cigarette smoking related illness. For this reason alone, and the US government's clear stand on the risks associated with cigarette smoke (first- or second-hand), Part 1632 should be discontinued immediately.

The touchstone regarding the abolition of Part 1632 **should not be** whether the Part 1632 test might address a risk that is not addressed by proposed Part 1633. Under that constraint, tests would multiply especially without the easy scientific ability to prove a negative.[7] New tests would never replace old tests and new tests would be required to consider every conceivable failure mode possible and also require a solution. **The principal should be one of deterministic efficiency.** Without a doubt, Part 1633 advances the flame resistance of what is already inarguably a perfectly safe product in its current state. The industry should not be punished (by being over-regulated) for working closely with the CPSC to advance the products' safety in devising a new standard and tests to address real world risks.

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[5] Of course, as part of any responsible quality control program, under Part 1633, tests of products from all plants will be essential, but just not the rote and redundant tests required under Part 1632.

[6] Part 1633 testing is very involved and almost without exception will be conducted under very controlled, laboratory conditions essentially at an independent accredited lab or at a fully equipped R&D test center.

[7] We believe such attempts to look for gaps between Parts 1632 and 1633 to be a tremendous misallocation of government or corporate resources. Such inquiry misses the point that the most likely cause and origin of almost any bedroom fire is an open flame directly on the mattress, the boxspring, or both, not a cigarette burning atop an unmade mattress.

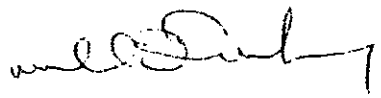
By abolishing Part 1632, the CPSC would free all mattress manufacturers to more effectively focus on the task at hand and make more cost efficient and better open-flame resistant beds. Thus, US citizens would be quicker to replace their mattresses with the cost efficient 1633 compliant products (assuming Part 1633 becomes a final regulation).

If, for some reason, the CPSC cannot immediately abolish this anachronistic standard upon the passage and enforcement of Part 1633, we implore the CPSC to begin whatever process necessary to phase out Part 1632 and in the meantime, immediately amend Part 1632 by abolishing per plant testing so that Part 1632 testing can be accomplished more safely and efficiently in one centralized location. We also ask the CPSC to immediately address the other time-worn requirements under Part 1632 (such as the Pall Mall non-filtered cigarettes and the six sleep surface requirements), if it cannot immediately abolish the standard as it addresses mattresses.

We would be happy to discuss with you the attendant costs (both for testing and record-keeping) associated with Part 1632. We would also be happy to discuss our findings regarding the very clear redundancy of our chosen open flame barrier solution with respect to Parts 1632 and 1633 testing protocols. All available evidence indicates to us that a mattress with the FR barrier/system we have designed and incorporated into our TB603/proposed Part 1633 compliant product performs equally well under and passes the tests set out in Parts 1632 and 1633, and we have performed hundreds, if not over a thousand, relevant tests with our commercially available product with open flame protection.

As always, we have a great appreciation for our industry's relationship with the CPSC and what we believe is a real-world practical approach by those in the CPSC charged with protecting the consumers of the United States. We strongly believe that if the CPSC's long history of pragmatic regulation is prologue to this new century, the CPSC will abolish Part 1632 (as to mattresses) upon the effective enforcement of Part 1633. As stated above, we remain available to discuss any of the topics covered in this letter or more generally, the regulatory framework under Parts 1632 or 1633 and we look forward to continuing the dialogue and our partnership in the years to come.

Sincerely,



Michael Q. Murray
Vice President – Legal Counsel
Sealy, Inc.

Mattress 7

VENTEX
a unique venture in textiles
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August 22, 2005

Office of the Secretary
ATTN: Todd Stevenson
Consumer Product Safety Commission
Washington DC 20207-0001

Reference: **Advanced Notice of Proposed Rulemaking: Possible Revocation or Amendment of Standards for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition) – 16 CFR 1632**

Dear Mr. Stevenson:

Ventex, Inc. accepts the Consumer Product Safety Commission's invitation to comment on the Advanced Notice of Proposed Rulemaking: Possible Revocation or Amendment of Standards for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition) – 16 CFR 1632 as published in the Federal Register on June 23rd, 2005 (pages 36357-36359).

The ANPR has been issued in light of comments that were is raised in the NPR on Mattress Flammability – 16 CFR 1633 – that contend that the pending 16 CFR 1633 standard of evaluation of flammability of mattresses and mattress pads will render the cigarette ignition standard "not necessary" and "burdensome."

Ventex believes that there should be no change to 16 CFR 1632, let alone consideration of its revocation, until hard science demonstrates a technical redundancy in the assessment of the threat posed by the two dissimilar ignition sources, smoldering cigarettes and small open flames.

Since 1973, the cigarette ignition has been the "law of the land" and the mattress industry has noted on numerous occasions how its compliance with this standard has saved lives. The development of the NIST two-burner protocol, used in proposed 16 CFR 1633, began prior to the ANPR on Mattress Flammability published October 11, 2001. There have been no substantive changes to this procedure since its conception.

In the comments on the Mattress Flammability ANPR, comment CF 02-15, presented by Patricia Martin of the Sleep Products Safety Council (SPSC), states:

> *"Fire experts agree that open-flame ignitions present substantially different problems than those posed by smoldering cigarettes because open-flame burning and smoldering involve two different combustion mechanisms."*

Furthermore, she states:

> *"...the SPSC urges the Commission to establish a single fully-integrated flammability standard that would cover both smoldering cigarette ignition (likely using a test method similar to that required by the Existing Standard) and small open-flame ignitions."*

We wholeheartedly agree with the SPSC that the "two different combustion mechanisms" are present and that they are "substantially different."

As the NIST two-burner protocol has not been materially modified since its development prior to the October 11, 2001 ANPR and this comment, then one can only conclude that the standard embodied in the proposed 16 CFR 1633 does not address this dual and disparate threat. Therefore, we do not believe that the standard proposed as 16 CFR 1633 addresses protection from the risk of smoldering cigarette ignition to the extent necessary to permit CPSC to revoke or amend it. Any such action would create the potential for future injury or death that might otherwise have been avoided.

Any change to the 16 CFR 1632 prior to the actual implementation of the proposed 16 CFR 1633 is premature. We recognize the benefits to commerce that reduced regulatory burdens may offer and would support science-based analysis as inferred by the SPSC. Until such time as there is objective and indisputable research that proves that the protection from open-flame ignition sources fully encompasses the additional risk from cigarette ignition, any change will put lives at risk unnecessarily.

I appreciate in advance the consideration that the Commission will give to my comments and am available at your convenience to provide any further clarification of the issues that I have raised.

Sincerely,
VENTEX, INC.

Mike Slavik
Vice President

Mattress

INTERNATIONAL
SLEEP
PRODUCTS
ASSOCIATION

August 22, 2005

Office of the Secretary
Consumer Product Safety Commission
Room 502
4330 East-West Highway
Bethesda, MD 20814

Re: **Mattress Industry Comments on the Advance Notice of Proposed Rulemaking; Revocation of Standard for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition)**

Dear Mr. Secretary:

These comments are provided on behalf of the International Sleep Products Association (ISPA) and the Sleep Products Safety Council (SPSC) concerning the above-referenced Advance Notice of Proposed Rulemaking (ANPR) published by the Consumer Product Safety Commission (the Commission) at 70 Fed. Reg. 36357 on June 23, 2005.

The mattress industry appreciates the opportunity to comment on the ANPR. We support the Commission's proposal to determine whether it is appropriate to revoke or amend the existing mattress cigarette ignition test required under existing 16 CFR Part 1632 (Part 1632).

Many mattress manufacturers that currently make mattresses that pass California's Technical Bulletin 603 (TB603) have found that those mattresses also routinely pass the requirements of Part 1632. Given that the product performance requirements of proposed Part 1633 (dealing with open-flame ignitions of mattresses) are ether identical to or somewhat more stringent than those specified in TB603, these manufacturers would expect similar results under proposed Part 1633.

Based on this anecdotal evidence, the mattress industry believes that the proposed Part 1633 requirements may make existing Part 1632 redundant. We support the Commission moving forward to develop the scientific data necessary to confirm whether this is the case. The industry would welcome the opportunity to work with your agency in helping to develop such information.

Please contact me should you require any further information regarding the mattress industry's comments.

Sincerely,

Ryan Trainer

Ryan Trainer
Executive Vice President & General Counsel

Stevenson, Todd A.

From: Ganesh.Rao@us.ul.com
Sent: Tuesday, August 23, 2005 12:05 PM
To: Stevenson, Todd A.
Subject: UL Comments on June 23, 2005 ANPR - Cigarette Ignition

Please see attached comments from Underwriters Laboratories Inc. (UL) on the CPSC Advance Notice of Proposed Rulemaking, published in the June 23, 2005 Federal Register.

Please contact the undersigned with any questions.

Best Regards,

Ganesh Rao
Manager Government Affairs
Underwriters Laboratories Inc.
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August 16, 2005

Office of the Secretary
U. S. Consumer Product Safety Commission
Room 502, 4330 East – West Highway
Bethesda, MD

Subject: Mattress ANPR (Cigarette Ignition)

Dear Mr. Secretary:

This is to provide comment on the "Advance Notice of Proposed Rulemaking; Possible Revocation or Amendment of Standard for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition)", published in the June 23, 2005 Federal Register. Based on ANPR, we understand the Consumer Product Safety Commission (CPSC) is considering revising or rescinding the requirements for cigarette ignition resistance of mattresses and pads.

Underwriters Laboratories Inc. (UL) fully encourages efforts to increase public safety, particularly in the area of fire protection. UL has previously communicated our support of the open flame test protocol and performance criteria in a previous letters to the CPSC dated November 23, 2003 and March 10, 2005.

In our March 10, 2005 letter we noted, "consideration should be given to withdrawing the current cigarette requirement and protocol of 16 C.F.R. Part 1632. The proposed test protocol represents a more sophisticated quantitative approach of which the basis of the test (oxygen consumption calorimetery) is widely accepted in the fire protection engineering community."

Since the March 10 letter we have had the opportunity to further discuss the topic both internally within UL and with various stakeholders, including component suppliers to the mattress industry, and representatives of the fire service. In regard to the revision or rescinding of the current cigarette ignition requirements, we offer the following comments for the Commission's reflection.

CIGARETTE IGNITION ANPR

1. Consideration should be given to the National Institute of Standards and Technology research work that provided the basis for the small open flame test. It is our understanding that the test evolved from the acknowledgment that mattresses are typically not the first item ignited, but rather, bedclothes (comforters, pillows etc,) initially ignite which in turn propagates the fire to the mattress. We understand the ignition source was developed to represent the thermal stress of the bedclothes to the mattress.

2. We understand the small open flame test under consideration by CPSC to be technically equivalent to California's TB 603. It has been our experience in conducting thousands of these tests that the industry has developed new products, which represent a tremendous improvement in fire properties relative to the generation of heat release rate.
3. Consideration should be given to field statistics that although well referenced, are based on varying degrees of analysis of the fire scene. It may be difficult to specifically ascertain the differences in smoldering and open flame ignitions; clearly both are possible.
4. Although an appropriate and very robust test, TB 603 represents a situation fairly advanced in a fire event timeline. It is our understanding that the cigarette ignition test represents an exposure that although less severe in terms of thermal stress, is indicative of a situation which may occur much earlier in a fire event timeline.

As such, UL is not in favor of rescinding the cigarette ignition resistance requirement, as it is difficult to assess the impact without a detailed comparison of the of two test protocols from an end-use safety standpoint. Based upon numerous large-scale fire tests on completed mattress and upholstered furniture products, we are concerned that the elimination of the cigarette smoldering resistance requirement may allow the introduction and use of exterior coverings that could represent a higher risk condition to the public. These components are located outside of fire barriers that are often intended to protect product interior flammable components, such as foams, low- density ticking and filler materials. We are also concerned about the effects of smoldering ignition by-products on occupants and their ability to respond appropriately to a fire event. The current cigarette test indirectly allows an estimation of the amount of material charred, which can provide some insight into the quantity of combustion products formed. The requirements of the current test ensure that this condition is minimized.

We appreciate the opportunity to provide comment. If you wish to discuss further, please feel free to contact me at your convenience.

Sincerely:

J. Thomas Chapin

J. Thomas Chapin, PhD.
General Manager, Fire Safety SBU
Underwriters Laboratories, Inc.
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10
mattress

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Office of the Secretary,
Consumer Product Safety Commission,
Washington, DC 20207–0001

August 22, 2005

Dear Sir/Madam,

I would like to comment on the proposed regulatory activities by the Commission associated with the fire safety of mattresses: "Mattress ANPR (Cigarette Ignition).", as published in the Advance Notice of Proposed Rulemaking; Possible Revocation or Amendment of Standard for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition), in the Federal Register on June 30, 2005, pages 36357-36359.

Fires initiated by cigarettes always start as smoldering fires, but they can easily (after varying times, often many hours) transition into flaming fires. The overwhelming majority of all cigarette initiated fires start in upholstered furniture or bedding. The reason for this finding is that upholstered furniture and bedding are the consumer products most likely to be covered in cellulosic materials.

Recent work on smoldering and flaming ignition of cellulosic fabrics, conducted by experts in textile research (Phillip Wakelyn, Patricia Adair and Robert Barker ("Do open flame ignition resistance treatments for cellulosic and cellulosic blend fabrics also reduce cigarette ignitions?" Fire and Materials, 29, 15-26 (2005)) has shown that techniques used to make fabric have lower flaming ignition propensity can have an adverse effect on the smoldering ignition behavior.

A study was published in 1997 ["Comparison of the Propensity of Cigarettes to Ignite Upholstered Furniture Fabrics and Cotton Ducks (500 Fabric Study)," M.M. Hirschler, Fire and Materials 21, 123-41 (1997)] in which a set of 500 upholstery fabrics (chosen at random among typical upholstery fabrics) was assessed for their smoldering ignition propensity, when exposed to a cigarette which had been designed to have high probability of causing smoldering ignition. The set of 500 fabrics was a representative cross-section of the upholstery fabrics available in the early 1990s. Of the 500 fabrics tested, only 145 fabrics (29%) were found to be ignitable by cigarettes, all of them predominantly (or completely) cellulosic. Many of the cellulosic fabrics that did not undergo smoldering ignition were heavyweight fabrics. This study reinforced the understanding that fabrics without cellulosic content are unlikely to undergo smoldering ignition. Moreover, it also suggests that other materials (such as foams) are unlikely to undergo

smoldering combustion, unless the combustion is initiated by a cellulosic material. Therefore, protection of foams (or other non cellulosic paddings) is not likely to have any effect on smoldering ignition tendencies of cellulosic paddings.

The general conclusion to be drawn from these studies (and they are simply representative of extensive amount of work conducted throughout the years) is that resistance to smoldering ignition is relevant only for cellulosic materials (mattress tickings, cellulosic paddings, upholstery fabrics) and is not necessarily associated with a resistance to flaming ignition, by either the cellulosic materials themselves or the non cellulosic paddings (such as polyurethane foams or polyester fiberfill).

When the Consumer Product Safety Commission was established in the US in May 1973, it was given the authority to deal with the issue of flammability of upholstered furniture and mattresses. Later, a private organization, the Upholstered Furniture Action Council (UFAC, created in 1974, as a voluntary industry association to focus on the problem of the flammability of residential upholstered furniture) developed a series of 6 test methods for cigarette ignition of upholstered furniture components and constructions (that has been standardized as ASTM E 1353 and NFPA 260) and it instituted a voluntary program for compliance with these test methods in 1978. Manufacturers of contract furniture (i.e. non residential) are mostly associated within the Business and Institutional Furniture Manufacturers' Association (BIFMA International) and they have adopted a different test for assessing smoldering ignition, as a voluntary standard (BIFMA X5.7, pt. 5, which has been standardized as ASTM E 1352 and NFPA 261). This particular test assesses upholstered furniture mock-ups or composites. On the other hand, for mattresses a federal requirement has been in place since about that time, which requires that mattresses, mattress tickings and mattress pads be resistant to smoldering ignition (Department of Commerce (DOC) FF 4-72, or Code of Federal Regulation (CFR) 1632 [16 CFR Part 1632, "Standard for the flammability of mattresses and mattress pads," Code of Federal Regulations, Commercial Practices, Subchapter D: Flammable Fabrics Act Regulations, Vol. 16, part 1602-1632]). I believe this is an important requirement. since a significant fraction of fire fatalities in the US have, for many years now, started with the smoldering ignition of upholstered furniture or of mattresses. In the years since these three smoldering ignition tests went into effect, cigarette initiated upholstery (upholstered furniture and mattresses) fires and fire fatalities have decreased in the US.

Unfortunately, however, US fire losses associated with upholstery have not gone down nearly as much as they did in the United Kingdom, where there is mandatory regulation for both smoldering and flaming ignition of upholstered furniture and mattresses since the late 1980s. It is interesting to consider that the British regulation has been very effective in decreasing fires, fire fatalities, fire injuries and fire losses (UK Government Consumer Safety Research, "Effectiveness of the Furniture and Furnishings (Fire) (Safety) Regulations 1988," Consumer Affairs Directorate, Dept. Trade and Industry, London, UK, June 2000 [research conducted by Professor Gary Stevens, Univ. of Surrey, Guildford, UK), and it includes requirements for flaming ignition of fabrics, polyurethane foam and other fillings, but also includes requirements for smoldering ignition.

The California Bureau of Home Furnishings and Thermal Insulation (CBHF) has issued California Technical Bulletin 603, Requirements and Test Procedure for Resistance of a Mattress/Box Spring Set to a Large Open-Flame," which is in effect since January 1, 2005, and mandates that all residential mattresses sold in the state must meet a flaming ignition fire test requirement. However, CBHF has not rescinded California Technical Bulletin 106,

"Requirements, Test Procedures and Apparatus for Testing the Resistance of a Mattress or Mattress Pad to Combustion Which May Result from a Smoldering Cigarette," which is equivalent to the Federal mattress smoldering flammability standard.

It is understandable that CPSC wants to pursue a comprehensive American federal solution to the problem. CPSC is to be commended for issuing the recent Notice of Proposed Rulemaking (NPRM) on the new proposed 16 CFR Part 1633, Standard for the Flammability (Open Flame) of Mattresses and Mattress/Foundation Sets). It is clearly critical for public safety to regulate flaming ignition of residential mattresses, perhaps by using a test similar to that used by the state of California.

However, it is clearly not a good idea to rescind the federal mandatory requirements for resistance to smoldering ignition, just like this has not been done in the United Kingdom or in California. The potential clearly exists for solutions to the critical flaming ignition problem (by addressing barriers or fire retardance of non cellulosic fillings) to ignore (or even make worse) the problem of smoldering ignition of cellulosic components of mattresses, which can then, in turn, lead to a new flaming ignition problem. This presents a particular concern when it is understood that many of the solutions being offered to meet California Technical Bulletin 603 (and which are likely to be offered for the eventual CPSC test) are based on the use of barriers that prevent the ignition of the filling, without actually improving the fire performance of the filling. This means that the heat released by an exposed filling (in the absence of the barrier) is potentially quite high. Therefore, a cellulosic barrier that has not been tested for smoldering ignition propensity could be prone to smolder and then expose a filling and create a serious fire.

In summary, it is thus extremely desirable not to eliminate the requirements for mattress materials to continue being resistant to smoldering ignition.

Yours sincerely

Dr. Marcelo M. Hirschler

STATE OF CALIFORNIA - STATE AND CONSUMER SERVICES AGENCY ARNOLD SCHWARZENEGGER, Governor

Consumer Affairs

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August 22, 2005

Todd Stevenson, Secretary
U.S. Consumer Product Safety Commission
Washington, DC 20207-0001

Dear Mr. Stevenson:

The California Bureau of Home Furnishings and Thermal Insulation (Bureau) appreciates the opportunity to provide these comments to the Consumer Product Safety Commission (CPSC) regarding the continuation or modification of 16 CFR part 1632. Smoldering fires frequently result in serious injury and death. Eliminating or diluting a standard that for over 30 years has helped protect consumers against this hazard must be thoroughly studied and documented with good science, given the potential consequences to consumers.

The Bureau has been involved in the development of smoldering and open-flame test standards for mattresses since the late 1960's, and worked with CPSC on development of the original smoldering cigarette standard, DOC FF 4-72 (later renamed as 16 CFR 1632). The Bureau enforces 16 CFR 1632 (as Technical Bulletin 106) within the borders of California and notifies CPSC of confirmed violations. The Bureau has also developed three open-flame standards for mattresses 1) Technical Bulletin 121, which was adopted by the California Department of Corrections for state prisons in 1980, 2) Technical Bulletin 129, used as a reference standard for institutional mattresses throughout the United States, and 3) Technical Bulletin 603 (TB 603) which has been enforced in California as a new minimum, large open-flame standard for all mattresses since January 1, 2005.

Open-flame and smoldering ignition sources (cigarette, cigar, pipe, etc.) may eventually cause flaming fires in mattresses. Flaming fires may result from fires initiated by smoldering when combustibles reach a certain temperature and heat flux and optimum conditions for fire transition to flaming are reached. Typically, this smoldering scenario takes at least 30 to 45 minutes to develop; but, once flaming occurs, escape time is shortened to 2 to 3 minutes and occupants, depending on specific circumstances, may have little time to escape serious injury or death.

Non flame-resistant mattresses ignited by open-flame sources (matches, candles, lighters, electrical resistance space heaters, etc.) pose an immediate hazard to life and health. Rapid flaming ignition often leads to rapid flame propagation, which causes the fire to grow exponentially in size. A flaming fire allows shorter time duration for recognition, response, and escape than is allowed for a smoldering fire. While both flaming and smoldering fires can be life threatening, they tend to present different physiological hazards, with different time lines to untenable conditions.

Compliance with either the existing national cigarette resistance standard for mattresses (16 CFR 1632) or TB 603 must be achieved by specific changes in design, material components, and construction. Construction elements to meet 16 CFR 1632 have traditionally focused on using smolder resistant components, such as polyurethane foam padding (quilted to surface tickings or placed directly below tickings), synthetic fiber battings, smolder resistant tape edges, and sewing components, all near the mattress surface where a lit cigarette would fall and smolder. Use of these components in the appropriate thickness and geometries helps to render mattresses smolder resistant.

Construction strategies used to make mattresses resistant to large open-flame ignition and to reduce the speed and intensity of flaming propagation must focus on use of designs and material components that do not support flaming fires. Mattresses specifically made to resist smoldering may be prone to ignite and burn rapidly and continuously with an open-flame.

The most effective test standard would address fire propagation scenarios initiated by smoldering and flaming ignition, to minimize the negative effects of each. Materials or material combinations may be available now or may be capable of development, to resist both flaming and smoldering ignition sources. Solutions to both hazards must be found in the industry after a decision is made on a test standard that adequately protects consumers from both types of mattress fire hazards.

Based on the Bureau's history of standards development and testing, mattresses designed and constructed to be resistant to large open-flame ignition and propagation are generally made in one of two ways. In one design scenario, the core filling material of the mattress is designed to resist rapid and progressive release of heat. This can be achieved by the use of a flame-resistant filling such as melamine-loaded polyurethane foam or a filling such as densified polyester fiber batting, which shrinks away from flame and self-extinguishes. In the second scenario, a protective barrier or inter-liner encases all or most of the combustible fillings to prevent negative synergies between the outer ticking and the fill components and large releases of heat as the fire spreads across the mattress surface. These barriers function to prevent the transfer of heat and flame into the mattress core, providing an impervious shield from involvement of filling contents in the fire. Solutions to open-flame fires in mattresses have been proven to be cost-effective in meeting California's TB 603.

Flame-resistant mattresses, containing a flame-blocking barrier or inter-liner, or a filling with high resistance to flame propagation, may, in some cases, also serve to limit or prevent the development of a fire that begins with a smoldering source on the surface component or components near the surface, and later becomes a flaming fire. In this case, the barrier serves two functions. It prevents flaming fires from becoming life threatening, and can also have a positive effect in limiting the spread of a smoldering fire. In the smoldering scenario, a zone of intense smoldering on the surface ticking or cover is limited in its direction of burn and cannot proceed vertically from the top or horizontally from the border, into the mattress core due to the heat-blocking characteristic of the barrier material. Thus, a smoldering fire is prevented from involving the major core filling components in smoldering, and does not increase the smolder zone and temperature to the point where flaming and rapid escalation to a dangerous condition may occur. In this case, the probability of transitioning to a flaming fire resulting in flashover is minimized.

If the barrier or inter-liner material uses a smoldering or charring (intumescent or char-forming) mechanism to prevent propagation of flame into a combustible mattress core (i.e., polyurethane foam), it may not work to prevent a smoldering fire from transitioning to a larger fire that poses an immediate and serious hazard to life and health. This scenario may occur if smolder-prone components, such as blended cotton batting, are placed directly beneath or adjacent to the char-forming barrier. As the barrier smolders to prevent penetration of an external flame source into the mattress core, it may exacerbate the tendency of the underlying substrate to smolder, resulting in a worse smoldering fire than would have been the case with a barrier employing a different fire-suppression mechanism.

To explore the phenomenon of the effect of the new barrier materials and construction designs on the reduction of both flaming and smoldering fires, the Bureau examined the flammability results of a subset of 62 types of mattresses and futons sampled between January and August of 2005 in the commercial market in California. These products were all manufactured on or after January 1, 2005, or were produced prior to that date; but, were specifically constructed to meet Technical Bulletin 603. Also, by federal law, they are still required to meet 16 CFR 1632. A sample of each type was tested to TB 603, and a separate identical sample was tested to 16 CFR 1632, the federal cigarette standard.

The database consisted of the following types of sleep products:

35-mattress/box spring sets (new)
9 mattress/box spring sets (rebuilt)
10 futons
2 crib mattresses
2 twin mattresses (no box spring)
2 twin foam mattresses (no box spring)
1 bunk bed mattress
1 rollaway mattress

A summary of the 62 products, including a description of constructions and test results, is found in the attached Excel table "Results of Mattresses/Futons Tested for TB 603 and TB 106 (16 CFR 1632)."

Sixty-one (61) of the 62 sleep products passed both Technical Bulletin 603 and 16 CFR 1632. This indicates that for this subset of products, there is no tendency for compliance with TB 603 to cause an increase in the failure rate for 16 CFR 1632. However, one product, a cotton fiber-filled futon, did fail 16 CFR 1632. Futons constructed with cotton filling represent a growing segment of the sleep product market. As the number of futons in the California market grows, the tendency for some of these products to smolder and fail 16 CFR 1632 will continue. While the data shown here is limited in size, care should be exercised in assuming that futons, while generally very flame-resistant, do not continue to pose a smoldering hazard. Therefore, caution should be used in drawing the conclusion that construction of a product to meet the open-flame standard may have no broader-based negative effect on smoldering, for the following reasons:

1) The failure rate of mattresses and futons for 16 CFR 1632 is already generally very low due to years of diligence on the part of the sleep industry in designing and constructing most products to be smolder resistant.
2) The 62 products in this study are a relatively small initial sampling of sleep products, and may not reflect the full range of barriers and constructions available in the sleep market to meet both standards. With a larger database, some negative effect on smoldering may be observed, but is not evident here.
3) This sampling included only 10 futons, which have a tendency to be made with more smolder-prone components (fabrics and fills). A larger sampling of futons could possibly result in a tendency for more failures of 16 CFR 1632 in products passing TB 603.

Also, continued industry research on barrier and filling materials and construction designs is likely to result in solutions which are effective in reducing both smoldering and flaming. In the interim, the Bureau recommends further study with the goal of answering the following questions:

1) What types of barriers or filling materials are adequate to prevent or minimize both flaming and smoldering fires in sleep products?
2) What types of barriers or filling materials are effective in preventing flaming, but not smoldering in a sleep product, or vice versa?
3) What changes could be made in the failure criteria of 16 CFR 1632 which would continue to predict the tendency to smolder and protect against worst-case smoldering fires, but allow use of char-forming barriers in sleep products that are effective in reducing flaming ignition and propagation?

The Bureau looks forward to continued cooperation and dialogue with CPSC as we explore solutions to this problem that will derive mutual benefit for consumers.

Respectfully submitted,

Brian J. Stiger, Chief
Bureau of Home Furnishings and Thermal Insulation

Attachment

RESULTS OF MATTRESSES/FUTONS TESTED FOR TB603 AND TB106 (16 CFR 1632)

0019-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, thin batting barrier , foam, waste batting. Continental Boxspring with woven no-skid pad, foam, cardboard	02/04/2005	P	P
0022-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, batting barrier , foam, waste batting. Continental Boxspring with woven no-skid pad, cardboard	03/04/2005	P	P
0023-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, batting barrier , foam, waste batting. Continental Boxspring with no-skid pad, cardboard	02/11/2005	P	P
0024-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, thick batting barrier , foam, scrim, memory foam, waste batting. Standard Boxspring with no-skid pad, cardboard	02/11/2005	P	P
0029-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, filling. Continental Boxspring with no-skid pad, cardboard	03/04/2005	P	P
0032-2005	TWIN COTTON FUTON	Tufted Woven Fabric Cover with Blended Cotton Batting fill, no box spring	03/10/2005	P	P
0035-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, thin batting barrier, foam, waste batting. Continental Boxspring with no-skid pad, cardboard	02/28/2005	P	P
0036-2005	TWIN COTTON & FOAM FUTON	Tufted Woven Fabric Cover with Blended Cotton Batting, foam fill, no box spring	03/03/2005	P	P
0040-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, batting barrier. Synthetic batting, Blended Cotton Batting (2 layers), waste batting. Fabric barrier on borders. Standard Boxspring with cover ticking on top, fabric barrier, cotton batting	04/21/2005	P	P
0043-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, thick pillowtop, Continental boxspring.	02/28/2005	P	P
0047-2005	TWIN MATTRESS/BOX SPRING (REBUILT)	Innerspring w/woven ticking, thin batting barrier , blended cotton batting, foam, waste batting. Continental Boxspring with barrier fabric, cardboard	03/04/2005	P	P
0048-2005	TWIN MATTRESS/BOX SPRING	Continental Box Spring	03/11/2005	P	P
0049-2005	TWIN FOAM MATTRESS	Woven ticking, thin batting barrier, foam core, no box spring	02/04/2005	P	P
0050-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, thin batting barrier, foam, waste batting. Continental Boxspring with no-skid pad, cardboard	03/07/2005	P	P
0052-2005	TWIN MATTRESS SET	Innerspring w/ woven ticking, thin batting barrier, foam, waste batting. Box spring w/ no skid pad, barrier, foam cardboard.	04/11/2005	P	P
0056-2005	TWIN MATTRESS SET	Innerspring with thin barrier batting, foam. Box spring with no-skid pad and cardboard	04/14/2005	P	P
0057-2005	TWIN MATTRESS/BOX SPRING (REBUILT)	Innerspring w/ woven ticking, non-woven barrier, foam, blended cotton batting, foam, waste batting. Continental box spring with no-skid pad, cardboard.	04/11/2005	P	P

RESULTS OF MATTRESSES/FUTONS TESTED FOR TB603 AND TB106 (16 CFR 1632)

0059-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, barrier, foam, waste batting. Standard boxspring.	03/14/2005	P	P
0060-2005	CRIB MATTRESS	Woven ticking, barrier, foam core, no box spring	03/25/2005	P	P
0061-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, barrier , foam, waste batting. Continental Boxspring.	03/25/2005	P	P
0062-2005	ROLL-AWAY TWIN MATTRESS	Woven ticking with thin batting barrier, foam. No box spring.	03/25/2005	P	P
0063-2005	TWIN MATTRESS/BOX SPRING (REBUILT)	Innerspring w/woven ticking, barrier, foam, waste batting. Standard boxspring.	03/16/2005	P	P
0064-2005	TWIN MATTRESS/BOX SPRING (REBUILT)	Innerspring w/woven ticking, batting barrier, foam, waste batting. Continental boxspring.	03/11/2005	P	P
0065-2005	FULL MATTRESS/BOX SPRING	Innerspring w/woven ticking, thin batting barrier , foam. No boxspring.	04/12/2055	P	P
0066-2005	TWIN MATTRESS/BOX SPRING (REBUILT)	Innerspring w/woven ticking, thin batting barrier, foam, waste batting. Continental boxspring with no-skid pad, waste batting.	04/11/2005	P	P
0067-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, thin batting barrier, foam, waste batting. Continental Boxspring with no-skid pad, foam.	03/29/2005	P	P
0068-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, thin batting barrier, foam, waste batting. Continental boxspring with no-skid pad.	03/29/2005	P	P
0075-2005	TWIN MATTRESS/BOX SPRING	Pillowtop Innerspring. Boxspring.	03/16/2005	P	P
0079-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, batting barrier, foam, synthetic batting. Continental boxspring with no-skid pad, foam.	03/15/2005	P	P
0080-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, non-woven thin felt fabric barrier, foam, waste batting. Continental boxspring with no-skid pad, cardboard.	03/17/2005	P	P
0084-2005	TWIN FUTON	Woven ticking with blended cotton batting fill. No boxspring.	04/01/2005	P	P
0089-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, batting barrier, foam, waste batting. Continental boxspring with no-skid pad, cardboard.	03/15/2005	P	P
0090-2005	TWIN FUTON	Woven tufted ticking with blended cotton batting covering foam core. No boxspring.	04/12/2005	P	P
0091-2005	TWIN FUTON	Woven tufted ticking with blended cotton batting covering foam core. No boxspring.	03/17/2005	P	P
0096-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/ woven ticking, felt fabric barrier, foam, waste batting. Continental box spring with no-skid pad, cardboard.	03/15/2005	P	P
0107-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/ woven ticking, FR cotton barrier, foam, waste batting. Continental box spring with no-skid pad, cardboard.	04/13/2005	P	P
0110-2005/111-2005	FULL INNERSPRING FUTON	Innerspring with ticking, blended cotton batting covering foam core. No box spring.	03/11/2005	P	F

RESULTS OF MATTRESSES/FUTONS TESTED FOR TB603 AND TB106 (16 CFR 1632)

0113-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, felt fabric barrier, foam, waste batting. Continental boxspring with no-skid pad, cardboard, waste batting.	04/14/2005	P	P
0118-2005	TWIN MATTRESS/BOX SPRING (REBUILT)	Innerspring w/woven ticking, batting barrier, foam, blended cotton batting, coconut fiber. Standard boxspring with no-skid pad, felt fabric barrier, foam.	04/19/2005	P	P
0124-2005	TWIN MATTRESS/BOX SPRING (REBUILT)	Innerspring w/woven ticking, thin synthetic batting, blended cotton batting, waste batting. Standard boxspring with no-skid pad, waste batting.	04/14/2005	P	P
0125-2005	TWIN MATTRESS/BOX SPRING (PILLOWTOP)	Innerspring pillowtop w/woven ticking, felt fabric barrier, foam, waste batting. Continental boxspring with no-skid pad, waste batting.	04/14/2005	P	P
0126-2005	TWIN MATTRESS/BOX SPRING (PILLOWTOP)	Innerspring pillowtop w/woven ticking, felt fabric barrier, foam, waste batting. Continental boxspring with no-skid pad, waste batting.	04/22/2005	P	P
0128-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, blended cotton batting barrier, foam, waste batting. Continental boxspring with no-skid pad, waste batting.	04/22/2005	P	P
0133-2005	TWIN MATTRESS/BOX SPRING (REBUILT)	Innerspring w/woven ticking, thin batting barrier, foam, waste batting. Continental boxspring with no-skid pad, waste batting.	04/04/2005	P	P
0141-2005	TWIN MATTRESS/BOX SPRING	Woven ticking, specialty foam barrier, scrim, waste batting. Standard, fully-upholstered box spring.	04/04/2005	P	P
0145-2005	TWIN MATTRESS	Innerspring w/woven ticking, blended cotton batting barrier, foam, waste batting. No boxspring.	04/29/2005	P	P
0214-2005	FULL FUTON	Woven tufted ticking with blended cotton batting fill. No boxspring.	05/13/2005	P	P
0224-2005	TWIN MATTRESS	Innerspring w/ woven quilted ticking, batting barrier, foam, waste batting. No boxspring.	04/29/2005	P	P
0225-2005	TWIN MATTRESS/BOX SPRING	Innerspring with woven quilted ticking, barrier batting, foam, waste batting. Standard box spring with no-skid pad and blended cotton batting.	04/29/2005	P	P
0226-2005	TWIN FUTON	Woven tufted ticking with outer, sack, blended cotton batting covering foam core. No boxspring.	04/08/2005	P	P
0228-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/ woven quilted ticking, batting barrier, foam. Continental box spring with no-skid pad, cardboard.	05/02/2005	P	P
0230-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven quilted ticking, batting barrier, foam, scrim. Continental Boxspring.	05/06/2005	P	P

RESULTS OF MATTRESSES/FUTONS TESTED FOR TB603 AND TB106 (16 CFR 1632)

0234-2005	TWIN MATTRESS/BOX SPRING	Innerspring with quilted, woven ticking, batting barrier, foam. Standard boxspring with no-skid pad, cardboard.	05/02/2005	P	P
0239-2005	TWIN MATTRESS/BOX SPRING	Innerspring with woven quilted ticking, thin batting barrier, foam, waste batting. Standard fully-upholstered boxspring.	08/12/2005	P	P
0276-2005	FULL FUTON	Woven ticking with felt fabric barrier, synthetic batting, blended cotton batting over foam core. No boxspring.	07/08/2005	P	P
0330-2005	FUTON	Woven fabric cover with waste batting. No boxspring.	06/16/2005	P	P
0335-2005	TWIN MATTRESS/BOX SPRING (SINGLE-SIDED)	Innerspring woven ticking with batting barrier, foam, waste. Continental boxspring.	08/12/2005	P	P
0359-2005	TWIN MATTRESS/BOX SPRING	Innerspring w/woven ticking, blended cotton batting, foam, waste. Continental Boxspring.	06/23/2005	P	P
0415-2005	TWIN MATTRESS (BUNKBED)	Woven ticking, smooth top, batting barrier, foam, cardboard and wood frame. No separate boxspring.	08/15/2005	P	P
0454-2005	CRIB MATTRESS	Innerspring, vinyl ticking cover, densified polyester batting fill. No boxspring.	07/29/2005	P	P
0502-2005	TWIN MATTRESS/BOX SPRING (REBUILT)	Innerspring w/woven ticking, felt fabric barrier, foam, waste batting. Boxspring w/ no-skid pad, barrier fabric foam, cardboard.	07/12/2005	P	P
0545-2005	TWIN MATTRESS (FOAM CORE)	Woven ticking, felt fabric barrier, foam core. No boxspring.	07/29/2005	P	P

Mathews 12

National Cotton Council OF AMERICA

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PRODUCERS • GINNERS • WAREHOUSEMEN • MERCHANTS • CRUSHERS • COOPERATIVES • MANUFACTURERS

August 25, 2005

Mr. Todd Stevenson
Office of the Secretary
Consumer Product Safety Commission
4330 East-West Highway, Room 502
Bethesda, MD 20814
e-mail: cpsc-os@cpsc.gov

Re: Mattress ANPR (Cigarette Ignition)

Dear Mr. Stevenson:

The National Cotton Council (NCC) submits these comments in response to the U.S. Consumer Product Safety Commission (CPSC) Advanced Notice of Proposed Rulemaking (ANPR) requesting comments (70 FR 36357; 6/23/05) on the Possible Revocation or Amendment of *Standard for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition)*.

The NCC is the central organization of the U.S. cotton industry, representing producers, ginners, cottonseed interests, merchants, cooperatives, warehousemen and textile manufacturers whose primary business operations are located in 17 cotton producing states. NCC represents approximately 25,000 cotton producers that annually produce about 20 million bales of cotton (about 500 lbs/bale) and domestic textile mills that produce apparel and home furnishings from the about 6.5 million bales of cotton that are spun into textiles in the U.S. U.S. textile manufacturers continue to be reliable and important customers in spite of record level imports of textile and apparel products. The annual average farm gate value of U.S. cotton production is about $5 billion and its retail value is in excess of $100 billion. NCC textile and other members produce products used as mattress ticking and filling materials in mattresses and are directly affected by any mandatory standards that affect mattresses. Cotton's share of the U.S. mattress & box spring market is about 65,000 480-lb bales of domestic cotton (Source: National Cotton Council of America – *Cotton Counts Its Customers*, Summary 2002 Data).

The fire performance of a mattress ["a ticking filled with a resilient material used alone or in combination with other products intended or promoted for sleeping upon"; 16 CFR 1632.1 (a)] is a complex matter. The U.S. Standard for the Flammability of Mattresses and Mattress Pads (16 CFR 1632) has been in effect since 6/1972 and has been credited with greatly reducing the number of fires caused by smoking materials. However, cigarettes still account for 30% of mattress fires according to CPSC (70 FR 36359, first column). To address the open-flame ignition risk of mattress fires, which according to CPSC account for 35% of the mattress fires (70 FR 36359, first column), the California Bureau of Home Furnishings and Thermal Insulation (CA BHF), the National Institute of Science and Technology (NIST), and others studied the open-flame flammability of mattresses. The CA BHF promulgated a mandatory open flame flammability standard for mattresses effective 1/1/05 (TB603) and retained the Federal standard for

smolder (cigarette) resistance (16 CFR 1632) and CPSC has proposed a similar standard (proposed 16 CFR 1633; 70 CFR 2570) to address the open-flame risk.

Any regulation proposed and promulgated or proposed for revocation or amendment by CPSC to address an unreasonable risk of death or injury due to ignition of mattresses and mattress/foundation sets by small open flames and cigarettes should be shown to offer a significant level of increased fire safety for the public, be based on sound science, be technologically and economically feasible for industry to meet, be practical to implement, and preserve the performance, function, and aesthetics of mattresses.

It is very important for mattresses to be resistant to cigarette ignition, since at least 30% of the injuries and fatalities from fire involving mattresses are due to cigarette ignitions. This is with a federal standard for cigarette ignition resistance (16 CFR 1632) in place since 1973. Before CPSC amends or revokes this standard, the Agency needs to have sound scientific data to show that the changes are necessary and will not have an adverse affect on the risk of death or injuries to the public from mattress fires. CPSC should be very careful not to alter the current effectiveness of 16 CFR 1632. NCC is not aware of published peer reviewed data to support a change to 16 CFR 1632, but is aware of data that indicate that treatments to textile materials (both fiber and filling materials) for open-flame resistance can adversely affect smolder resistance. NCC, therefore, supports retaining the current Standard for Mattresses and Mattress Pads until there are sound scientific data showing that the effectiveness of 16 CFR 1632 is not altered by any changes proposed or finalized. More detailed comments are given below.

CPSC should not revoke or significantly amend the existing cigarette-ignition standard for mattresses and mattress pads (16 CFR 1632) unless or until there is sound scientific data to support a change

Virtually all common textile materials will burn when exposed to ignition sources. Textile materials burn by two distinctly different processes (Barker and Drews, Flame Retardants for cellulosic materials, in *Cellulose Chemistry and Its Applications*, Nevell and Zeronian, Eds., Ellis Horwood Limited, Chichester, England, 1985, chap. 17, pp. 423–454; Horrocks, Flame retardant finishing of textiles, *J. Soc. Dyers Colour.*, 16, 62, 1986). Since the fibers that make up textile materials are composed of large, non-volatile polymers, *flaming combustion* (e.g., that caused by an open flame source, such as a match or burning bedclothes) requires that the polymer undergo decomposition to form the small, volatile organic compounds that constitute the fuel for the flame. For many common polymers, this degradation is primarily pyrolytic with little or no thermo-oxidative character. The combustion of polymers is a very complex, rapidly changing system. *Smoldering* or *glowing combustion* (e.g., that caused by a cigarette) on the other hand involves direct oxidation of the polymer and/or chars and other non-volatile degradation products. Unfortunately, smoldering is also subject to acceleration by common alkali metal ions such as sodium, potassium or calcium (Krasney, A Simple Method for Reducing Cigarette Fires, *Text. Chemist Colorist* 24[11], 12, 1992). These metal ions catalyze the oxidation reaction, producing more rapid heat release and promoting smoldering. Cotton in both the raw state and as dyed and finished fabric frequently contains metal ions in sufficient quantity to cause smoldering when exposed to a cigarette or similar ignition source. Soiling of cotton or rayon fabrics may cause a previously smolder-resistant material to become smolder ignition-prone.

Because the relevant chemistry is very different for flaming and smoldering combustion, approaches to prevent the two combustion modes are usually different. Inhibition of smoldering combustion and flaming combustion require very different types of chemical retardant action. Smolder retardants can be either physical barriers or oxidation inhibitors. Flaming combustion retardants cause inhibition by alteration of either the decomposition or oxidation reactions. Treatments to control open-flame ignition can adversely affect smolder resistance (Wakelyn, Adair, and Barker, Do Open Flame Ignition Resistance Treatments for Cellulosic and Cellulosic Blend Fabrics Also Reduce Cigarette Ignitions?, *Fire and*

Materials 29, 15-26, 2005). In addition, polyurethane foams that are manufactured to pass open flame tests, e.g., TB 117+ foam, will sometimes fail smolder resistance testing (Private communication of unpublished data from testing foams by draft proposed CPSC upholstered furniture test, 2005).

The behavior in flammability tests of 100% cellulosic and cellulosic blend textile materials that contain less than 25-30% thermoplastic fiber is complicated. They can to be affected by fabric weight, fabric construction, yarn preparation (open-end vs. ring spun), alkali metal content, and dyeing and finishing methods as well as possibly other variables. Fabric barriers, batting and non-wovens, polyurethane foam all can have reduced smolder resistance after open-flame flame retardant treatments to give them flame resistance. Effective standards for open flame ignition of mattress/foundations and mattress pads need to consider the effect of open flame ignition resistance treatments on smolder ignition resistance. Since at least 30% of the injuries and fatalities from fire involving mattresses are due to cigarette ignitions, it is very important for mattresses to be resistant to cigarette ignition.

In addition, there are unanswered questions concerning the reliability, repeatability, and effectiveness of the CPSC proposed test method for open-flame ignition of mattresses and foundations (proposed 16 CFR 1633; 70 FR 2470, 1/13/05):
1. *Size Effects*: T.J. Ohlemiller of NIST has released a new report, NIST Technical Note #1465, "*A Study of Size Effects in the Fire Performance of Beds*" (www.fire.nist.gov/bfrlpubs/NIST_TN_1465.pdf.). This study indicates that if the heat release from a mattress is much above 50kW, it does not scale up from twin to full, queen, and king. The mattress standard proposed by CPSC (proposed 16 CFR 1633; 70 FR 2470, 1/13/05) and the one finalized by the CA BHF, TB603, only requires the twin-sized mattress to be tested and assumes that these results represent all size of mattresses of a particular type/style. Also there is much uncertainty about the flammability of mattresses in these tests after 30 min.
2. CPSC has yet to release the precision and bias study on the mattress test method even though it has been finished for almost a year. This suggests that there may be problems concerning the repeatability and reproducibility of the mattress flammability test. John "Gib" Mullan, Assistant Executive Director, CPSC Office of Compliance, is on record this year at two industry conferences as saying that the repeatability and reproducibility results in a precision and bias study of a test method should be at least within ± 10%. The lack of an acceptable precision and bias for the TB603/16 CFR 1633 test method also raises questions about the validity and meaning of the results that are obtained from the proposed CPSC test for open-flame ignition. CPSC should be required to address the questions raised by the NIST research concerning whether the test method can be scaled up and the precision and bias testing of the test method for mattresses before finalizing a standard for the open flame flammability of mattresses and mattress/mattress foundation sets or amending or revoking 16 CFR 1632.

Summary

Since smolder ignition and open flame ignition are different mechanisms, and products (both fabric and filling materials) that pass open flame ignition testing can sometimes fail cigarette ignition testing or have increased cigarette ignition propensity, NCC urges CPSC to retain their current standard for flammability of mattresses, 16 CFR 1632, unless and until there is strong scientific data to support a change. CPSC should not make any changes that reduce the effectiveness of the current 16 CFR 1632.

Since mattress pads are covered by 16 CFR 1632, CPSC also needs to clarify how they intend to regulate mattress pads and under what standard(s).

NCC is pleased to submit these comments for consideration by CPSC. If there are questions regarding our comments please contact me (202-745-7805 or pwakelyn@cotton.org).

Sincerely,

Phillip J. Wakelyn, Ph.D.
Senior Scientist, Environment, health and Safety
National Cotton Council,
1521 New Hampshire Ave.
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Stevenson, Todd A.

From: Phil Wakelyn [PWAKELYN@cotton.org]
Sent: Friday, August 26, 2005 5:15 PM
To: Stevenson, Todd A.
Cc: Tenney, Allyson; Neily, Margaret L.
Subject: Mattress ANPR (Cigarette Ignition)

05CPSC mattress ANPR comments ...

Re: Mattress ANPR (Cigarette Ignition)

Dear Mr. Stevenson:

The National Cotton Council (NCC) submits these comments [see attached] in response to the U.S. Consumer Product Safety Commission (CPSC) Advanced Notice of Proposed Rulemaking (ANPR) requesting comments (70 FR 36357; 6/23/05) on the Possible Revocation or Amendment of Standard for the Flammability of Mattresses and Mattress Pads (Cigarette Ignition) .

Sincerely,

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