CPSC MEETING LOG
UPHOLSTERED FURNITURE & MATTRESSES/BEDDING

Meeting Between: CPSC staff and members of the Polyurethane Foam Association (PFA 2002 Spring Meeting Flammability Review)

Date of Meeting: May 8, 2002

Meeting Site: Marriott Crystal Gateway Hotel, Arlington, VA

Log Entry By: Margaret L. Neily, Fire Program Mgr., ES, 301-504-0508 x1293
Dale R. Ray, Project Mgr., EC, 301-504-0962 x1323

Participants: Lou Peters, Executive Director, PFA, Technical Program Chmn.
Robert Leudeka, J.P. Hogan, PFA Associate Director
Speakers:
John McCormack, Technical Mgr., California BHFTI
Margaret Neily & Dale Ray, CPSC
Ryan Trainer, Sleep Products Safety Council
Joe Ziolkowski, UFAC
Ted Halchek, Akzo-Nobel
Rich Rose, Great Lakes Chemical
Greg Howard, Rhodia
plus about 100 representatives of manufacturers, suppliers, and members of related industry groups (attendance list attached)

Summary:

This semi-annual meeting of the Polyurethane Foam Association included a Flammability Review session on topics of interest to the polyurethane foam industry. Included were two presentations on CPSC's activities on open flame ignition of upholstered furniture and mattresses and bedding. Mr. Ray presented an overview of the status of the furniture project, and Ms. Neily presented an overview of the status of the mattress and bedding project. Presentation slides are attached. Mr. Ray and Ms. Neily also participated in a panel discussion and responded to a number of questions about various aspects of the CPSC staff's activities.

Mr. McCormack, of the California Bureau of Home Furnishings & Thermal Insulation, discussed the status of BHF activities toward amending their existing upholstered furniture standard, Technical Bulletin 117. Mr. Trainer, of the Sleep Products Safety Council, discussed bedding industry issues related to the ongoing, cooperative effort to develop an open flame standard for those products. Mr. Ziolkowski, of the Upholstered Furniture Action Council, discussed the furniture industry's perspective on various issues related to the regulatory proceedings at CPSC and BHF.

Mr. Halchek, of Akzo-Nobel, discussed the development of his company's Fyrol® line of flame retardant chemicals, and presented information on some new, phosphorus-based flame retardant chemicals that could be used as alternatives to various of that firm's halogenated compounds. Mr. Rose, of Great Lakes Chemical Co., discussed the global market for flame retardants, described his company's bromine-, phosphorus- and antimony-based compounds, and presented some information on their new Firemaster® and Reofos® compounds for polyurethane foam applications. Mr. Howard, of Rhodia, Inc., discussed new performance test data for his firm's Antiblaze® chloro-phosphate fire retardants, and presented information on one of their new fire retardant formulations.

The speakers assembled for a question-and-answer panel session. Mr. Ray and Ms. Neily responded to a variety of questions about the status of CPSC's activities, their relation to ongoing California BHF activities on furniture and mattresses, and the potential role of polyurethane foam products in reducing flammability risks.

Attachments

U.S. Consumer Product Safety Commission

Update on Upholstered Furniture Flammability*

Polyurethane Foam Association
May 8, 2002

CPSC Staff Briefing Package

October 2001

- Presents CPSC technical information
- Revised draft small open flame standard
- Staff recommendation: publicize data, get public feedback before considering regulatory options
- Staff recommendation: deny NASFM polyurethane foam petition

See web files at http://www.cpsc.gov/library/foia/foia02/brief/briefing.html

The Continuing Furniture Fire Hazard

- Leading cause of fire deaths associated with any consumer product
- 1998 addressable fire losses: 420 deaths, 1,080 injuries, $120 mil. property damage
- 1998 estimated societal costs = $2.4 billion
- Still no national standard addressing open flame risk

CPSC Staff Draft Small Open Flame Standard - Highlights

- Objective: evaluate and reduce ignitability & flame spread; limit fire growth
- 2 flame exposure locations: seating areas & dust covers
- 2 seating test options:
  - Small open flame test (e.g., FR cover fabrics)
  - Seating barrier test (e.g., fire-blocking interliners instead of FR fabrics)
- Sampling plan to establish compliance
- Recordkeeping to identify material sources

CPSC Staff Draft Standard: Small Open Flame Performance Requirements

Test	Ignition Source	Maximum Flaming	Maximum Smoldering/Glowing
Seating Area	35 mm butane flame, 20 sec.	2 min.*	15 min.
Alternate Seating Barrier	U.K. (BS 5852) Crib #5	10 min.	60 min.**
Dust Cover	35 mm butane flame, 20 sec.	2 min.*	15 min.

*with no burning to any edge of the test specimen
**with limited spread of combustion of foam/filling material, no dripping, and no uncontrolled flaming

Flame Retardant Chemicals

- CPSC Public Hearing - 1998
- CPSC staff toxicity reviews
- NAS study - 2000
  - 8 compounds: minimal health risk
  - 8 compounds: further study recommended
- NIOSH worker study
- EPA significant new use rule
- EU Risk Assessment
- PDBEs in urethane foam

CPSC Staff Risk Assessment

- Toxicity reviews of 16 chemicals
- Evaluated risk for 8 most likely/greatest concern
  - 4 compounds: no hazard (DBDPO, HBCD, CPE, PA)
  - 1 compound: probably no hazard (EHDP)
  - 1 compound: probable chronic hazard (TDCP)
  - 2 compounds: incomplete data
    - AT (inhalation route only)
    - THPC (identity / toxicity of migration products)

Next Steps

- Solicit public input before staff makes recommendations to the Commission on regulatory options
  - Public meeting June 18 - 19, 2002 to discuss technical information
  - See web file at http://cpsc.gov/businfo/fmotices/fr02/furn.pdf
- Review draft revision of Cal. TB-117
- Continue working with industry & voluntary standards groups to develop possible alternatives to CPSC regulation

CPSC Public Meeting

- Outside input on briefing package technical information & draft standard;
- Public discussion & participation
- *Federal Register*, CPSC Public Calendar, direct notification to representatives of:
  - Industry
  - Fire safety organizations
  - Government agencies
  - Consumer groups

CPSC Public Meeting Topics

- Technical data issues
- Industry efforts to develop safer materials and products
- Voluntary action status
- Recommendations to CPSC re: regulatory alternatives

CPSC Public Meeting Technical Information Topics

- Fire data & analysis
- Standards development / laboratory testing
- Draft small open flame standard provisions
- FR chemical risk assessment
- Economic analysis
- California, ASTM/SOFTC actions
- New product R & D
- Cooperative efforts

For Further Information:

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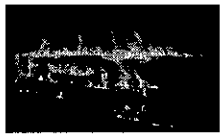
U.S. Consumer Product Safety Commission

OPEN FLAME IGNITION of MATTRESSES and BEDDING

Polyurethane Foam Association
Flammability Review
May 8, 2002
Margaret Neily



REDUCING LOSSES FROM MATTRESS/BEDDING FIRES

- Significant deaths and injuries, especially to children
- Developing understanding and options since 1998
- Small flame often ignites bedding; large bedding fire ignites mattress
- NIST research to characterize hazard and develop performance tests
- Industry supports mandatory standard
- CPSC began rulemaking October 11, 2002

BACKGROUND

- **Mattress/bedding fires are second only to upholstered furniture in deaths**
- **They are a leading cause of injuries**
- **Smoldering ignitions declined; not open flame**
- **1995 CPSC field study; 1998 Chairman's Roundtable**
- **Petitions from Children's Coalition for Fire-Safe Mattresses (2000) to expand standards**

INCIDENT DATA

- **1998: 18,100 fires, 390 deaths, 2,160 injuries, $208.3 million property damage**
- **Small open flame fires: 100 deaths/980 injuries**
- **Smoking material fires: 230 deaths/660 injuries**
- **Five year period from 1994 - 1998**
  - Candle, match, lighter fires affect children , **<15 years old**
  - Smoking material fires affect victims **15 years and older**

INCIDENT DATA continued

- **Bedding ignition leads to flashover fires**
  - Everything in room ignites simultaneously
  - Casualty outside room of origin implies flashover occurred
- **Standard with large ignition source and designed to limit flashover could:**
  - address 300 deaths and 1,460 injuries (all ages)
  - 60 deaths and 130 injuries (children < 5 years old)

EXISTING STANDARDS

- **Reviewed 13 tests and standards**
- **State and local government**
  - California TB 129, TB 121, TB 117
  - Michigan Roll-up Test
  - Boston BFD IX-11
- **Consensus standards**
  - ASTM E-1474, E-1590
  - Underwriters Laboratories UL 1895, UL 2060
  - National Fire Protection Association NFPA 264-A and 267
- **International standards**
  - United Kingdom BS 6807 and BS 5852

☐ Full-scale tests ☐ Small-scale, component tests

Children's Coalition for Fire-Safe Mattresses

CCFSM PETITIONS

- **Four options to address open flame ignitions of mattresses**
  - **FP 00-1** full-scale, open flame test like California TB 129
  - **FP 00-2** small-scale, open flame component test like British standard BS 5852, Part 2, Ignition Crib 5
  - **FP 00-3** mattress label warning of fire hazards of polyurethane foam
  - **FP 00-4** permanent, fire-proof identification tag

Existing Standards & Petitions

- **Many initially appear to address hazard (including TB 129 and BS 5852)**
  - Lack adequate test requirements or test conditions
  - Lack clear relationship to typical fire scenario
  - Require excessive testing costs
  - Unnecessarily limit mattress designs, constructions and materials (that could provide reduced fire hazard)
- **Staff and public commenters supported NIST work**
  - Measures/defines risk of residential mattress fire
  - Tests and analysis form basis of effective standard

WHAT NEXT?

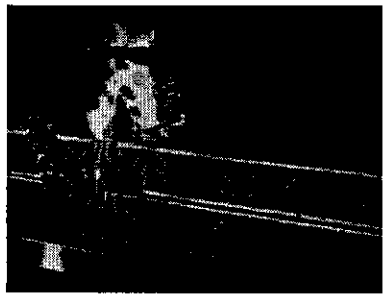
- **NEED BETTER UNDERSTANDING OF:**
  - Residential fire scenario
  - Magnitude of the hazard to be addressed
  - Contribution of burning bedding
  - Effectiveness of product changes in reducing the hazard
- **POSSIBLE TO DEVELOP:**
  - Reasonable and effective standard to reduce fire deaths/injuries
  - Materials and constructions suitable for residential mattresses
  - Tests for practical product development and enforcement

RESEARCH & TEST DEVELOPMENT

- **NIST research** sponsored by SPSC
  - Define and measure hazard of real mattress/bedding fires
  - Phase 1 (1998-June 2000)
  - Phase 2 (2000-2002)
- **NIST smaller scale screening test** for CPSC
  - Bench scale surrogate for full-scale tests
  - Funding support from USFA
- **California BHF providing test support** for these efforts

Phase 1 (1998-2000)

- **Evaluated bedding products**
  - 12 combinations of bedding
  - peak heat release rates from 50 kW - 200 kW (not flashover conditions)
- **Characterized heat impact on mattress**
  - 6 bedding combinations (moderate to intense)
  - measured heat flux, duration, location
  - top more severe than side conditions
- **Designed gas burners**
  - simulate heat impact on top and side of mattress
  - intensities and exposure times



Gas burners simulating exposure to burning bedding

Phase 1 continued

- **Comparison tests with burners & bedding**
  - 1 mattress with current residential technology
  - 4 mattresses with potentially fire resisting components
    - barrier fabrics, modified fibers, FR treated foams
  - Correlation was good except with one mattress (internal over-pressurization with burning bedding)
- **Burners - reasonable simulation of most burning bedding conditions**
- **Various materials and construction techniques can improve mattress fire behavior**

Phase 2 (2000-2002)

- **Determine ability of small-scale mattresses to predict behavior of larger bedding systems**
  - 2' x 2' mini mattress, twin size, king size performance
  - mattress size affect on fire intensity
  - mattress size impact on room environment
- **Provide analytical basis to estimate mattress performance characteristics needed to reduce hazard**
  - effect of bed & room size on fire size
  - ignition threat to surrounding objects
  - location of persons relative to fire origin
- **Test filled bedding products made with potentially fire resisting materials**

Screening Test (2001-2003)

- **NIST developing surrogate for full-scale test**
- **Small-scale screening test for typical laboratory is critical**
  - compliance screening
  - mattress design/materials/construction screening
- **Will test resistance to burn-through, seam integrity, performance of full composite**
- **Report expected in January 2003**

* Funding provided by CPSC and US Fire Administration

CALIFORNIA LEGISLATION

- **Bill AB 603 signed by the Governor in August '02**
- **California Bureau of Home Furnishings will establish regulations by January 1, 2004 for**
  - mattresses
  - box springs and
  - bedding, as appropriate
- **Flame resistance--defined by a resistance to open flame test**
  - developed by the Bureau or
  - based on ASTM 1590 (similar to TB 129)

COMMISSION DECISION

- **Initiate rulemaking to consider a performance standard to reduce deaths and injuries from open flame ignitions of mattresses**
- **Grant FP 00-1 and FP 00-2 to initiate rulemaking for a performance standard**
- **Deny FR 00-3 and FP 00-4 because labeling would not reduce the fire risk**

ANPR PUBLISHED 10-11-02

- **Incident data and technical research sufficient**
- **Substantial portion of fire loses addressable**
- **Mattress industry supports mandatory standard**
- **Research underway to develop effective test**
- **Mattress materials and designs being developed with improved fire performance**

EMERGING ISSUES

- Commenters continue to support NIST work--Phase 2 to be completed later this year
- California is required to consider bedding requirements
- Should bedding items be included in a fire performance standard?
- Industry to evaluate possible benefits to filled bedding items from new materials developed for mattresses

PFA Spring General Business Meeting and Technical Program
May 8 – 9, 2002
Crystal Gateway Marriott
Arlington, VA

Pre-registration List as of April 24, 2002

Armando Espinola	Maria	Acojinamientos Sinteticos SA
Chris Gallagher		Air Products & Chemicals
Curt Junge		Air Products & Chemicals
Susan Kilpatrick		Air Products & Chemicals
Jane Kniss		Air Products & Chemicals
Don Ridgway		Air Products & Chemicals
Frank Womack		Air Products & Chemicals
Russ Batson		AFMA
Fran Lichtenberg		API
Dick Mericle	Carol Ann	API
Alyson Price		API
Larry Bradford		AKZO-Nobel
Jim Carmine		AKZO-Nobel
Bill Coble		AKZO-Nobel
Bill Gentit		AKZO-Nobel
Ted Halchak		AKZO-Nobel
Barry Jacobs		AKZO-Nobel
Jim Neeley		AKZO-Nobel
Manny Pinzoni		AKZO-Nobel
Roger Woolley		AKZO-Nobel
Patty Adair		ATMI
Larry Berkowski		BASF
David Freidinger		BASF
Gary Lambert		BASF
Gene Schettler		BASF
Dick Johnston		BASF
Christian Buhse		Bayer Corporation
Noel D'Mello		Bayer Inc.
Stan Hager		Bayer Corporation
Robert C. Hale		Bayer Corporation
Wayne G. LeSage		Bayer Corporation
Daniel P. McMahon		Bayer Corporation
John C. Phelps		Bayer Corporation
Richard G. Skorpenske		Bayer Corporation
Jeremy Small		Bayer Corporation
Jerry C. Solini		Bayer Corporation
Greg Davis		Wm. T. Burnett
Dave Kelly		Wm. T. Burnett

Dick Tucker, Jr.		Wm. T. Burnett
John McCormack		CBHFTI
Robert Duffy		Cellchem International
Steve Gabelman		Cellchem International
Dale Lyman		Cellchem International
Dennis Spicher		Cellchem International
Neal Earhart		Ciba Specialty Chemicals
Dr. Kerstin Schrinner		Ciba Specialty Chemicals
Mark Speer		Ciba Specialty Chemicals
Walter MacKay	Lynda	Consultant
Herman Stone	Peggy	Consultant
Jeff Grayson		Crompton Corporation
Stephanie Knapick		Crompton Corporation
Tony Lanchek		Crompton Corporation
Lee Lawler		Crompton Corporation
Susan McVey		Crompton Corporation
Pierre Martineau		Crompton Corporation
Susan Norris		Crompton Corporation
Don Schumacher		Crompton Corporation
Dave Simpson		Crompton Corporation
Dale Ray		CPSC
Margaret Neily		CPSC
Ron Birnbaum		Degussa Goldschmidt
Rob Borgogelli		Degussa Goldschmidt
Drew Taylor		Degussa Goldschmidt
Jay Witherspoon		Degussa Goldschmidt
Hubert Creyf		EUROPUR
Michael Anders		Fecken-Kirfel America
Robert Thomson		Ferro Corporation
Vinnie Bonaddio		Foamex International
Donald Crawford		Foamex International
Steve Drap		Foamex International
Charlie Rose		Foamex International
Andrew Thompson		Foamex International
Bobby Bush		Hickory Springs
Dimitri Dounis	Effie	Hickory Springs
Doug Sullivan	Jeanie	Hickory Springs
David Underdown	Martha	Hickory Springs
Roger Hennington		Huntsman Petrochemical
Bob Grigsby		Huntsman Petrochemical
Ernie Rister		Huntsman Petrochemical
Greg Banks		Huntsman Polyurethanes
Brian Fogg		Huntsman Polyurethanes
Robert J. Lockwood		Huntsman Polyurethanes
Chris Haupt		Inolex
Tyler Housel		Inolex

Bill Tuszyski		Inolex
Shawn Conrad		ISPA
Ryan Trainer		ISPA
Bob Luedeka		J P Hogan
Chris Lemon		McIntyre Law Firm
Jim McIntyre		McIntyre Law Firm
Fred Defenbaugh		Milliken Chemical
Brian Dickey		Milliken Chemical
George Miller		NASFM
Steve Sanderson		NCFI
Swanson Snow		NCFI
Cathy Dean		PFA
Lou Peters	Dusty	PFA
Jorge Dosal	Susanna	Poliuretanos SA
Susan Eisenhower		Rebus Inc.
Jim Steever		Rebus Inc.
Bruce Stittsworth		Rhein Chemie
Claire Nighman		Rhodia Inc.
Hoover Chew		Rhodia Inc.
Greg Howard		Rhodia Inc.
Stephen Schmidt		Rhodia Inc.
Claus Kirsch		Saxol Chemie
Steve Chin		Shell Chemical
Joe Ziolkowski		UFAC
Steve Adams		UPACO Adhesives
Roger Ervast		Urethane Soy Systems
Tom Kurth		Urethane Soy Systems
Tony Vallecoccia		Valle Foam Industries
Dale McNeill		Valle Foam Industries
Michel Goldschneider		Velco Chemicals
Matthew Gelchion		Velco Chemicals
Bill Lucas		Vitafoam
Richard Loftin		Vitafoam
Huub Van Beijeren		Vitafoam
Bob Bruno		Vitafoam
Frank Sasser		Vitafoam