# CPSC MEETING LOG
## UPHOLSTERED FURNITURE

**Meeting Between:** CPSC staff and attendees at the American Furniture Manufacturers Association / Upholstered Furniture Action Council Flammability Workshop

**Date of Meeting:** March 6, 2001

**Meeting Site:** Sheraton Four Seasons Hotel, Greensboro, NC

**Log Entry By:** Dale R. Ray, Project Mgr., EC, (301) 504-0962 x1323

**Participants:**
Joe Ziolkowski, Upholstered Furniture Action Council
Karen Hatchel, California Department of Consumer Affairs, Bureau of Home Furnishings & Thermal Insulation
John McCormack, California BHF
Hugh Talley, Hugh Talley Co. (AFMA consultant)
Warner Fox, Attorney, Hawkins & Parnell, LLP
Michael Goldman, Attorney, Hawkins & Parnell, LLP
Dale Ray, CPSC
+ about 250 attendees representing furniture, textile, chemical, and polyurethane foam industry segments, including manufacturers, suppliers, distributors and retailers

**Summary:**

This annual AFMA/UFAC flammability workshop was held to provide members of AFMA and related organizations with the latest available information on flammability issues of concern to the industry. Approximately 250 people attended. The workshop program is attached.

Mr. Ray presented an update of CPSC activities on upholstered furniture and mattresses and bedding (presentation slides are also attached). He discussed fire hazard data, the newest version of the CPSC staff's small open flame performance standard, laboratory testing, flame retardant chemicals, and other technical issues to be incorporated into an upcoming decision briefing package for the Commission. He outlined a new seating barrier test alternative that the CPSC staff is considering incorporating into the standard. He also noted the staff's continuing willingness to listen to industry concerns and to consider options that would reduce industry burdens, and increase manufacturing flexibility and consumer choice, while preserving adequate safety, especially for low-income households most susceptible to residential fires.

A number of points about CPSC's work were discussed, including fire loss data adjustments to account for the effect of CPSC's 1993 cigarette lighter rule, decreased

smoking prevalence and gradual improvements in the cigarette ignition resistance of upholstered furniture being manufactured. Other topics included the differences between the CPSC staff's standard and the existing U.K. regulations, the results of CPSC's interlaboratory study, the National Academy of Sciences' report on flame retardant chemicals, the CPSC staff's analysis of FR chemical toxicity, and the relative cost of FR fabrics vs. seating barriers.

Ms. Hatchel and Mr. McCormack of the California Bureau of Home Furnishings & Thermal Insulation presented a report on the conclusions of BHF's testing and other technical work to revise the small open flame provisions of Technical Bulletin 117, the upholstered furniture regulation affecting all furniture sold in that state (their presentation slides are also attached). Mr. McCormack expressed particular concern about BHF's research suggesting that polyester batting contributed significantly to small open flame ignitability. They reported that they intend to propose revisions in 2001, including a possible series of more stringent component tests, reinforced by a composite mockup test to help ensure adequate flammability protection. Upholstered furniture manufacturers are ultimately responsible for compliance with TB-117, and could face additional test requirements under the revised TB-117. Ms. Hatchel invited industry input into their amendment process; she said she hoped to issue final amendments by 2003. These revisions would place less emphasis on filling material components than does the present TB-117, and could require barriers or, in some cases, FR fabrics as well as FR filling materials.

The BHF presentation generated substantial discussion. Industry representatives raised numerous questions and objections in the areas of compliance methods, component certification (presently done by suppliers), testing costs and the relation of TB-117 to TB-133, the existing large open flame regulation for non-residential furniture. Some attendees expressed their perception that TB-117 appeared to be moving in the direction of CPSC's standard, insofar as greater emphasis was being placed on the role of fabrics in composite ignition performance. Mr. McCormack agreed that testing would likely increase under the proposed revisions, but that all of the envisioned amendments were technically feasible.

In response to industry concerns about the shifting of the compliance burden from component suppliers to furniture manufacturers, Mr. McCormack stated that the revisions were based on BHF's research that revealed the importance of composite performance. He noted that the goal of the update project was to increase escape time in a fire by requiring that furniture burn more slowly. He also stated that pass/fail criteria had not been set, and invited industry comments on the appropriate criteria.

Mr. Talley discussed various existing standards for upholstered furniture, and addressed industry concerns about whether meeting one standard would help assure that others were met. Mr. Fox and Mr. Goldman discussed product liability as an important issue in furniture design and manufacturing.

Mr. Ziolkowski reported on the activities of the Joint Intra-industry Furniture Coalition, including the work of the coalition's Small Open Flame Technical Committee (SOFTC) to develop a small open flame test method. He described ongoing interlaboratory test work with six 100%-fiber fabrics (e.g., 100% polyester vs. 100% cotton, etc.); this is to be followed by lab studies with blended-fiber fabrics. The goal of SOFTC is to develop a test method for components, using weight-loss acceptance criteria, that would be predictive of composite test results and that could be the basis for a voluntary program similar to the UFAC cigarette ignition guidelines. Mr. Ziolkowski reiterated UFAC's position in favor of standard that would lead to "safe, effective and saleable" furniture. UFAC's statement on this issue is also attached.

# SPEAKER INFORMATION

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# FLAMMABILITY WORKSHOP

# 2001

Sheraton Greensboro Hotel
at Four Seasons
Greensboro, North Carolina

March 6, 2001

## MONDAY, MARCH 5, 2001

6:00 - 7:30 p.m. **Reception** Imperial BC

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## TUESDAY, MARCH 6, 2001

7:30 a.m. **Registration** Desk 5

8:30 a.m. **Welcome & Announcements** Guilford B

8:45 - 9:45 a.m.
**Consumer Product Safety Commission**
**Fire Safety Activities Update**

**Dale Ray**
Consumer Product Safety Commission

9:45 - 10:15 a.m. **Break**

10:15 a.m. - 12:00 p.m.
**California Bureau of Home Furnishings Activities**
**& Update of TB117 Revisions**

**Karen E. Hatchel**
**John McCormack**
Bureau of Home Furnishings and Thermal Insulation

12:00 p.m. - Noon **Lunch** Guilford A

1:00 - 2:15 p.m.
**Furniture Flammability Testing**
**Let's Minimize and/or Avoid the Confusion**

**Hugh Talley**
The Hugh Talley Company

2:15 - 2:30 p.m. **Break**

2:30 - 4:00 p.m.
**Furniture, Flames and Products Liability.**
**How to Handle the Perils of a Flaming Encounter**
**With Your Worst Nightmare: A Plaintiff's**
**Lawyer Who Wants Your Company's Money**

**Warner S. Fox, Esq.**
**Michael J. Goldman, Esq.**
Hawkins & Parnell, LLP

4:00 - 4:30 p.m.
**UFAC Update**

**Joe Ziolkowski**
UFAC

4:30 p.m.
**Adjournment**

**We have several tabletop displays in the meeting room which may be of interest to you and suggest you visit them during coffee breaks and lunch.**

*No statement made by speakers or participants may be construed as legal conclusions or legal advice regarding any law or regulation. To the extent that member companies require legal conclusions or advice regarding any subject discussed during this program, you should consult with your own legal counsel. The AFMA is not responsible for statements, opinions or materials of speakers.*

## U.S. Consumer Product Safety Commission

Fire Safety Activity Update on Upholstered Furniture & Mattresses

AFMA Flammability Workshop
March 6, 2001

## Upholstered Furniture: Activity Overview

- NASFM Petition
- ANPR - Small Open Flame
- Standards Development & Analysis
- FR Chemicals / NAS
- Regulatory Procedures / GAO
- NASFM Polyurethane Foam Petition
- Decision Briefing Package 2001

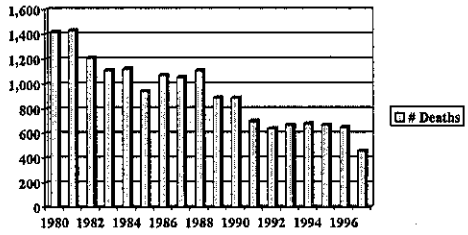
## 1997 National Fire Loss Estimates for Upholstered Furniture

| IGNITION SOURCE | FIRES | DEATHS | INJURIES | PROPERTY LOSS $Mil. |
|---|---|---|---|---|
| ALL SOURCES | 11,500 | 650 | 1,530 | $ 226 |
| SMOKING MATERIALS | 5,700 | 460 | 830 | $ 104 |
| OPEN FLAMES | 2,600 | 80 | 500 | $ 64 |

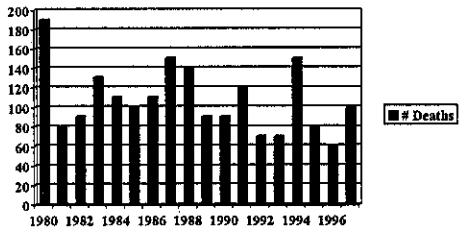
Total Societal Cost = $3.75 billion

Most open flame losses from childplay fires

## Upholstered Furniture Fire Deaths: Cigarette Ignition 1980-1997




## Upholstered Furniture Fire Deaths: Small Open Flame 1980-1997




## CPSC Flammability Testing

- Interlab Study '99-'00
  - Observed consistency & precision
  - Method suitable for use in standard
- UK Chairs / fabrics
- Additional fabrics / barriers

## CPSC Staff Draft Standard

- Primary Goal: limit ignition / early fire growth
- Seating Area Test
  - Mockup; 20 sec. flame; 2 / 15 min. combustion
- Option under consideration:
  Alternate Seating/Barrier Test
  - Mockup; UK crib #5; 10 / 60 min. combustion
- Dust Cover Test
  - Component; 20 sec. Flame; 2 / 15 min. combustion

## FR Chemical Evaluation

- CPSC public hearing
- CPSC toxicity reviews
- NAS study
- CPSC risk assessment / environmental review
- NIOSH worker study
- EPA new use rule

## NAS Conclusions

- Report to Congress 4/00
- 8 FR chemicals - minimal health risk, even under extreme exposure
- 8 FR chemicals - further exposure data needed

## Voluntary Standards Activity

- ASTM E5.15
  - Small open flame work group '96
- Intra-industry Furniture Coalition
  - UFAC Mission Statement 8/00
  - API Position Statement 8/00
  - New method / Test program?
- Fabric Industry Coalition
  - Testing with CPSC method
  - ATMI Position Statement 2/01

## CPSC / Industry Meetings

- ATMI / DFA / CCDF
  - Barrier manufacturers
  - Glassman-Oliver economic report 2/01
- AFMA / UFAC
  - NERA economic report 2/01
- API
- FRCA

## CPSC Briefing Package

- Options: Small Open Flame Ignition
  - Draft standard
  - Regulatory analysis / Reg. Flex. Analysis
  - FR chemical risk / Environmental assessment
  - Voluntary alternatives; Cal TB-117 activities
- Cigarette Ignition
- Polyurethane Foam Labeling

## Mattresses & Bedding:
### Activity Overview

- Open flame risk; bedding interaction
- CPSC Chairman's Roundtable
- CCFSM / NASFM Petitions
- Standards development / NIST
- Decision Briefing Package 2001

## 1997 National Fire Loss Estimates for Mattresses & Bedding

| IGNITION SOURCE | FIRES | DEATHS | INJURIES | PROPERTY LOSS $Mil. |
|---|---|---|---|---|
| ALL SOURCES | 22,200 | 530 | 2,380 | $ 338 |
| SMOKING MATERIALS | 6,400 | 260 | 800 | $ 76 |
| OPEN FLAMES | 8,200 | 120 | 1,010 | $ 129 |

**Total Societal Cost = $3.5 billion**

Most open flame losses from childplay fires

## For Further Information: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California Department of Consumer Affairs
Bureau of Home Furnishings & Thermal Insulation

# UPDATE
# Technical Bulletin 117 Revision

**American Furniture Manufacturers Association**
**Upholstered Furniture Flammability Seminar**
**March 6, 2001**

In October 1975, the California Bureau of Home Furnishings and Thermal Insulation began enforcement of Technical Bulletin 117 (TB 117), a mandatory, flammability standard for upholstered furniture sold in California. The purpose of the standard was to limit or slow the propagation of upholstered furniture fires caused by small open flame or smoldering sources, reducing the probability of death or injury by providing an increased opportunity for detection and escape. Over the last 25 years, California's TB 117 standard has been a major factor in the reduction of death, physical injury and property loss due to furniture fires in this state. It has also indirectly influenced the fire resistance quality of upholstered furniture sold in other states and several large national furniture suppliers routinely comply with TB 117 for all domestic product sales.

Since the original development of TB 117 over 25 years ago, there have been tremendous changes in the upholstered furniture industry. Advances in availability and fire performance of product materials, fire retardant technologies, manufacturing practices and the sophistication and accuracy of fire-testing protocols, have made clear the need to modernize this standard.

In October 1999, the Bureau announced that it was initiating a formal revision and update of the Technical Bulletin 117 standard. The Bureau's goal is a revised standard that offers greater protection for California consumers from upholstered furniture fires. The Bureau's intention is that the revised standard also be practical, straightforward and economically feasible. And as we proceed, the process of updating the standard will continue to be driven by sound science and objective research methods.

Revision of the TB 117 standard has proven to be a significant and complex undertaking. The major focus of our research has been to improve the resistance of upholstered furniture to small open flame. However, the impact of any changes in open-flame standards will be measured against the effect on smoldering performance, so that smolder resistance is not compromised. Research efforts relating to the revision of TB 117 are continuing. Though we have made significant progress in our goal of revising this standard, much work remains to be done and the research will continue.

The initial phase of our research has led to the following preliminary conclusions:

***Component Tests*** - Minimum performance standards for component filling materials will continue as a critical element of the TB 117 standard. The pass-fail criteria for some components, especially synthetic (polyester) fibers, must be made more stringent. Once the components have been shown to meet minimum standards, they must then be tested in a composite mockup configuration with the actual fabrics to be used in furniture construction. The composite tests may consist of the actual, finished product or a mockup composite consisting of the fabric to be used and the complying filling materials in the order of layering used in the furniture.

***Composite Tests*** - These tests have the greatest level of predictability for upholstered furniture fire performance. Research to date indicates that once filling components have met a more effective, minimum component standard, the range of available fabrics meeting a composite test may be widened and the need for F.R. backcoating of fabrics may drop significantly.

***Upholstery Fabrics*** - The revised standard must assess the performance of the upholstery fabric, as the first point of ignition, as well as the various classes of filling materials. Upholstery fabric plays a critical role in the development of an open-flame or smoldering furniture fire and is the first line of defense against ignition and propagation. In some cases, fabric alone, if sufficiently flammable, may pose a major fire hazard on its own, even when placed over effective fire-resistant materials. However, the entire burden of the revised standard must not be placed on the upholstery fabric. It must also assess the synergies that occur between fabrics and filling materials, as commonly used for furniture construction. To focus solely on the performance of individual components, such as fabrics or fillings, does not address the synergies inherent in combinations of material components used in the construction of finished furniture.

***Synthetic Fibers*** - Furniture flammability testing and research has clearly demonstrated that there are significant interactions between various individual components used in a furniture composite. Testing of individual components, no matter how severe such tests may be, does not address the behavior of these materials in a composite. A clear example of such interactions or synergies is the behavior of synthetic battings. Polyester and other synthetic battings, even non-fire retardant formulations, do not burn when individually exposed to an open flame. They simply melt or vaporize away from the flame source and stop burning. These same materials, however, when used below a fabric, can burn vigorously and cause the burning of the entire composite. Thus, the fabric acts as a secondary ignition source or "wick", depending on the type of fabric, and causes the batting and consequently, the entire composite, to burn. Therefore, the true fire performance of materials such as synthetic fiber battings, should be assessed in a component test, employing a cotton fabric substrate which assesses the melting and wicking of the polyester.

Improved performance of filling materials and the use of a simple composite test to measure fabric-fill interactions will be key elements of the revised Technical Bulletin 117. As this project progresses, the Bureau will continue to seek the input and assistance of a broad spectrum of entities, including furniture manufacturers and suppliers, industry associations, government regulatory agencies, fire safety organizations, and consumer groups. Working together, we can produce an improved standard that achieves a level of consumer protection worthy of our efforts.

## *California Technical Bulletin 117 Revision- An Update*

***A.F.M.A. Flammability Seminar***
***Greensboro, NC, March 6, 2001***

Karen Hatchel, Bureau Chief,
John McCormack, Manager R/D,
California Bureau of Home
Furnishings and Thermal Insulation

## *Goals of 117 Standard Revision*

- Upholstered Furniture that is safer from the hazards associated with open-flame and smoldering-caused fires than furniture meeting the current standard.
- Further reductions in death, injury and property loss rates from California fires associated with upholstered furniture.

## *Objectives of the 117 Revision*

- Improve resistance of upholstered furniture to ignition and propagation from small open flame sources (matches, candles, lighter, etc.)
- Slow the propagation rate for open-flame furniture fires, thus widening the window of time for occupant recognition and escape after ignition begins.

## *Objectives of T.B. 117 Revision (continued)*

- Reduce the rates of death, injury and property loss from fires associated with upholstered furniture.
- Achieve improved resistance to open flame without compromising level of resistance to smoldering ignition.

## *Focus of T.B. 117 Revision*

- Improved resistance of furniture to ignition and propagation from small open flame sources (matches, candles, lighters, etc.)
- Slowed propagation rate from open flame fires, allowing increased occupant escape time.
- Achievement of above goal without compromising level of resistance of furniture to smoldering ignition.

## *History of Technical Bulletin 117*

- Enforcement began as mandatory, California standard in October, 1975.
- 117 standard applied to upholstery fabrics and filing materials only, not composites.
- Technical Bulletin 116 promulgated at same time as a voluntary, cigarette smoldering standard, addressing only finished articles of furniture.

## *Earlier Revisions to T.B. 117*

- January, 1980- Polyurethane foam smolder test upgraded from horizontal slab test to seat-back mini-mockup test, to better assess foam smolderability.
- March, 2000- Eliminated afterglow requirement for Blended Cotton/Natural Fiber Battings in vertical flame test. Current 117 version is dated March, 2000.

## *Timetable for Current Revision*

- Announcement of revision made by Karen Hatchel, Bureau Chief in October, 1999,.
- Revision does not require new legislation. Chief has authority to initiate rulemaking. Para. 1374 in Regulation would reference new effective date for revised 117 standard.
- Draft protocol projected for industry peer review by December 31, 2001.

## *Furniture Industry Changes since 1975 Affecting 117*

- Availability of new and diverse fabrics, resilient fillings and structural materials.
- Better and more cost-effective fire retardant chemicals and F.R. process technologies.
- More complex and sophisticated manufacturing practices/better Q.C.
- Increased accuracy, predictability and reproducibility of fire-test standards.

## *117 Revision-Guiding Principles*

- Safer furniture for California and U.S. consumers
- Standard and enforcement policies will be based on sound science and adequate and reliable data.
- Standard will be economically feasible. Impact on business will be weighed.

## *117 Revision- Guiding Principles*

- Take advantage of furniture industry best practices.
- Forward-thinking businesses can benefit from offering safer products.
- Dialogue and communication with furniture industry, associations, laboratories and other key stakeholders is critical to the revision process for positive outcome.

## *Revision Issues*

- How to minimize the number of different tests required in current standard?
- How to spread the burden of fire retardancy fairly consistent with producing safer furniture?
- How to utilize industry best practices and improvements over last 25 years?

## *Requirements of Current 117 Standard-Uphy. Fabric*

- Section E- open-flame test identical to Flammable Fabrics Act, 16 CFR 1610- "Flammability of Clothing Textiles" standard, w/o laundering.
- Small, 45-degree open flame test on fabric only, flame impingement (1 sec) measures ignition and flame spread.
- High percentage (99+%) of fabrics pass.

## *Requirements of Current 117 Standard-Uphy. Fabric (cont'd)*

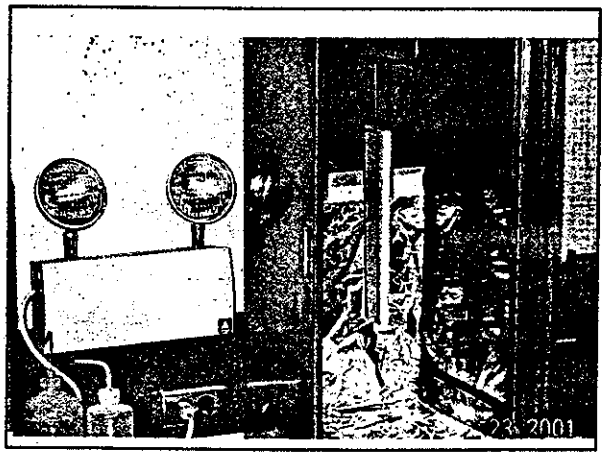
- Test does not assess meltability of fabrics, or interactions with filling materials.
- Test offers little or no predictive power regarding open-flame performance when fabrics are used as furniture upholstery .

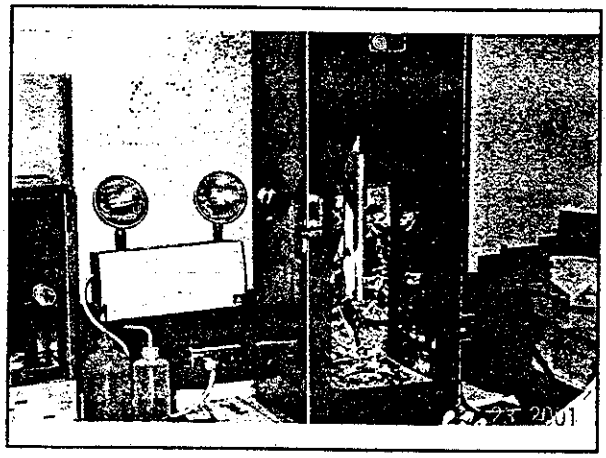
## *Requirements for Current 117 Std.-Polyurethane Foam Pads*

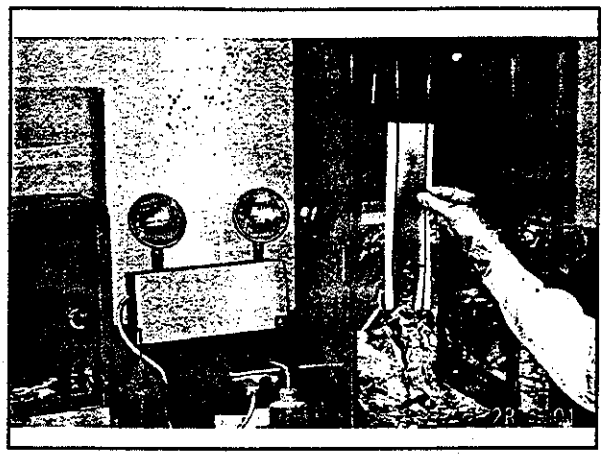
- Vertical Flame test with 3 in. x 12 in. x 1/2 in. foam specimen, 12 second impingement, 1.5 inch flame.
- Failure criteria- based on char length and afterflame.
- Must pass before and after oven aging.
- Applies to all cellular, slabstock foams.

## *Requirements - Current 117- P.U. Foam Pads (cont'd)*

- Test distinguishes between non-FR foams and fire-retardant foams.
- Requires approximately 10% of an efficient fire-retardant to pass.
- Test does not distinquish between higher performing (133, Melamine) foams- all have low char lengths and minimal afterflame.

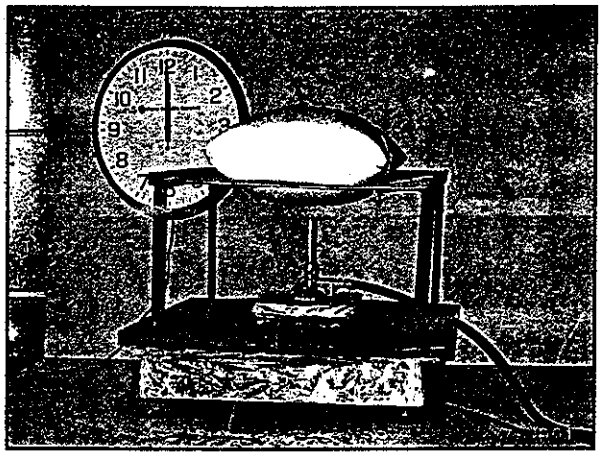






## *Requirements for Current 117 Std.-Shredded Cellular Foams*

- Section A, part II- Must be produced from 117-grade slabstock foam.
- Must be encased in F.R. ticking
- Cushion must survive 12-second bunsen burner flame and not lose more than 5% weight by breaking open.
- Packing density of foam in test must approximate actual product.



## *Requirements for Current 117 Std.-Polystyrene Beads (EPS)*

- Section A, part III- Tested after oven-aging with Methenamine Pill in wire basket.
- Pill burns approximately 2 minutes.
- Weight loss of beads must not exceed 5% in 5 repeat tests.
- Methenamine pill is a regulated prescription drug-difficult to purchase.

## *Requirements for Current 117 Std.-Cotton Battings*

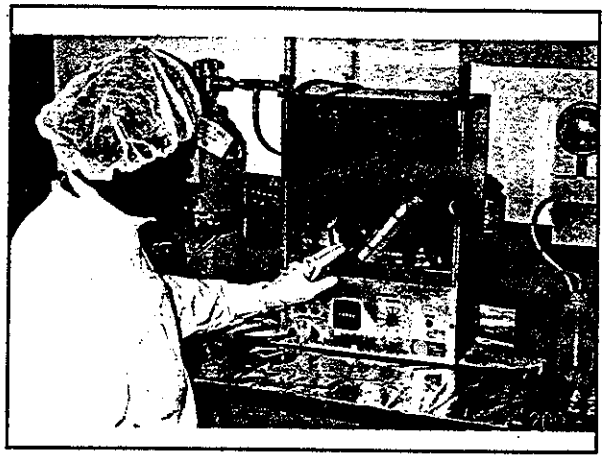
- Section B, part I-12 second vertical flame test identical to foam test, but no pre-aging done.
- Failures typically due to char length, not afterflame.
- Afterglow requirement dropped in March, 2000- no hazard established.
- Typical F.R. additive is Boric Acid-Borax powder or proprietary chemicals.

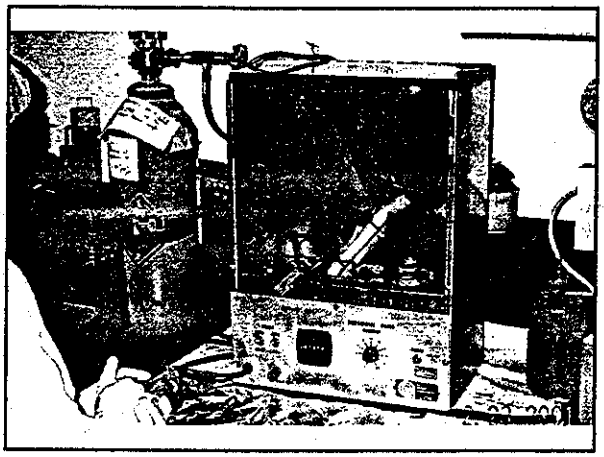
## *Requirements for Current 117 Std.-Feathers and Down*

- Section B, part II- No direct flame test on feathers and down, as with EPS and foams.
- Feathers and Down must be encased in F.R. ticking, as with shredded foams.
- Ticking must withstand 3 and 12 second flame impingements.
- Feathers and Down represent minor fire hazard due to protein (animal) based fibers.

## *Requirements-Current 117- Synthetic Battings/Loose Fills*

- Section C- 45 degree small, open flame tests similar to Uphy. Fabric Standard.
- 5 second flame impingement.
- Measures ignition and flame spread across surface of pure component.
- High percentage of synthetic fibers pass without addition of a fire-retardant.



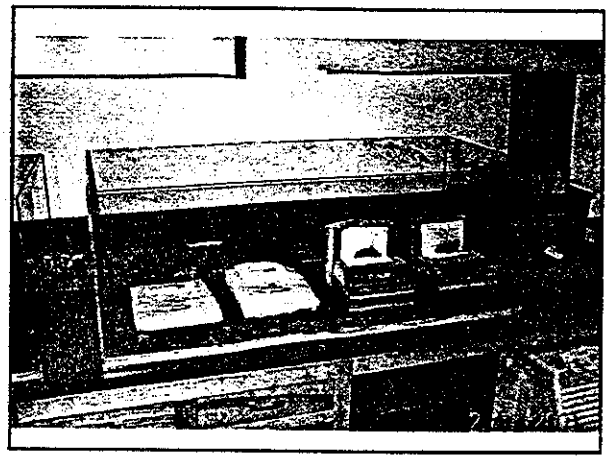


## *Requirements-Current 117 Std.- Natural/Synthetic Fiber Mixtures*

- Battings, pads and loose fills which are 40% to 60% mixtures of natural (cotton) fibers and synthetic(polyester) fibers must meet both vertical flame test (Section B) and 45 degree flame test (Section C).
- Mixtures of natural and synthetic fibers tend to fail 117 but test may not predict real world fire behavior of these materials.

## *Requirements-Current 117 Smoldering of Fillings*

- Natural and synthetic fiber fillings (except cellular foams) must meet cigarette slab test with and w/o sheeting-less than 2 inch char length (Section D, part I).
- Cellular (polyurethane, etc.) foams must retain 80% of weight when tested in UFAC wood mockup configuration with cigarette below sheeting (Section D, part II).



## *Key Elements of Revised 117 Standard*

- Composite test to predict small, open-flame performance of finished furniture product
- Maintain small/bench-scale component standards; allows furniture manufacturers, supply dealers to continue conducting tests.
- Improve flame resistance and melt-resistance of synthetic (polyester) battings, pads and loose (ungarnetted) fillings.
- Improve flame resistance of polyurethane slabstock foams.

## *Direction of Revised Standard-Synthetic Fibers*

- No single component test accurately predicts synthetic fiber performance, based on review of numerous small-scale and full-scale tests.
- Research in progress with a horizontal layer of standard, cellulosic fabric with synthetic fiber to measure burning interactions.

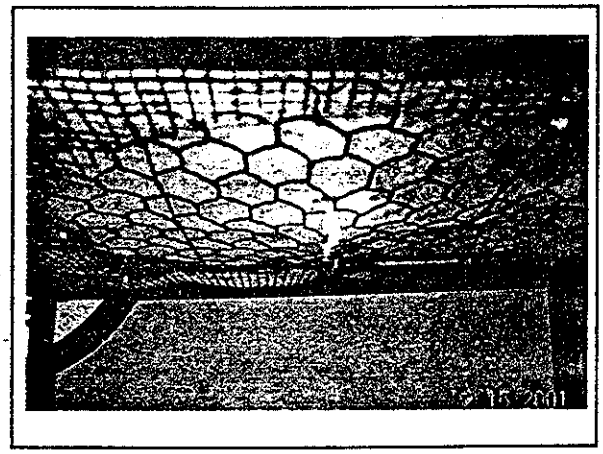
## *Direction of Revised Standard-Synthetic Fibers (cont'd)*

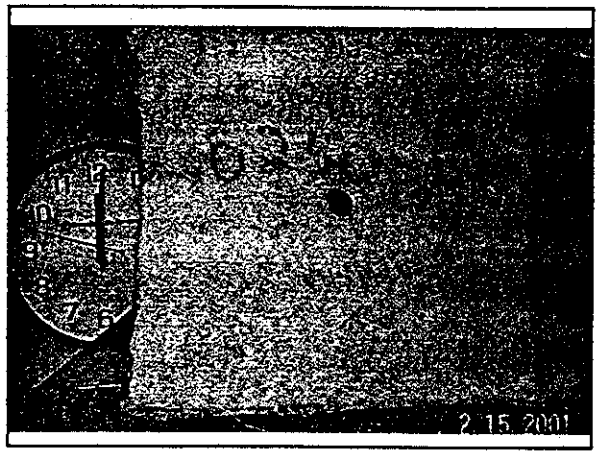
Synthetic fibers increase burn threat by

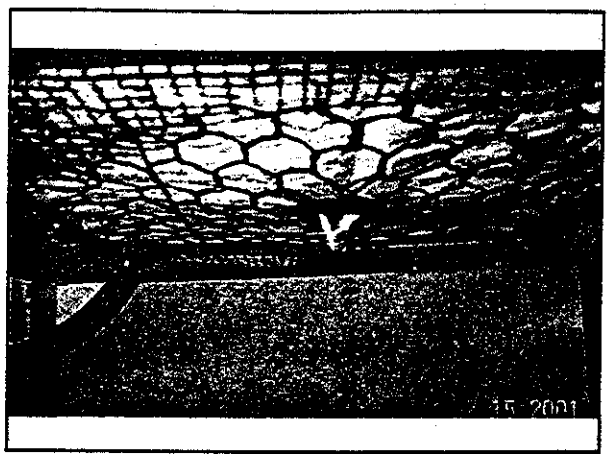
- 1) melting away from flame and allowing open-flame ignition of underlying (foam) subtrate layer and,
- 2) melting and wicking into fibers, fabrics or cellular foams and continuing to burn (negative interaction).

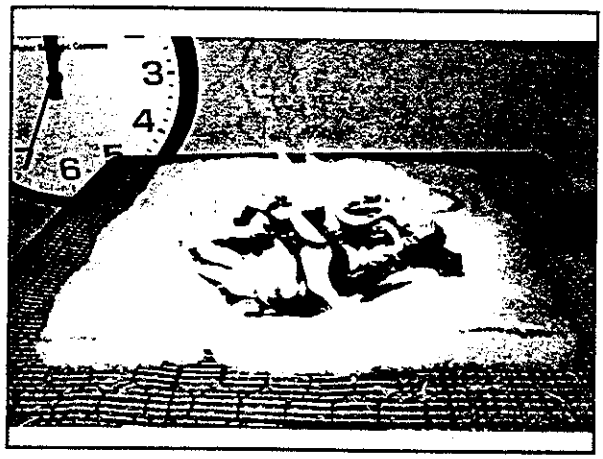
## *Direction of Revised Standard-Synthetic Fibers (cont'd)*

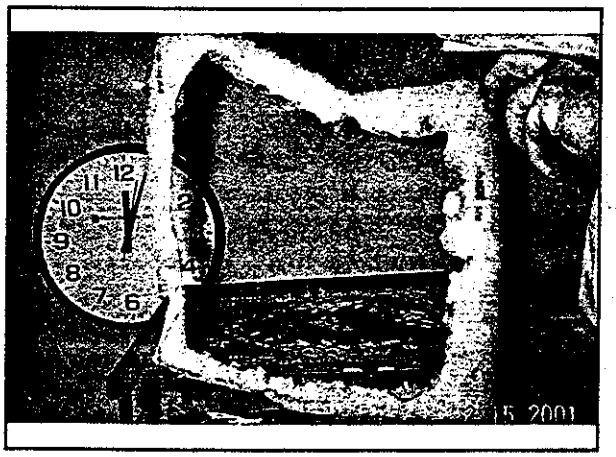
- Numerous synthetic fiber component tests researched including tests on pure synthetic battings and tests of battings with control fabric substrates.
- Horizontal rack test, 20 sec. Flame, with 100% cotton sheeting over or under synthetic batting shows some promise in delineating level of performance in battings. More study needed.

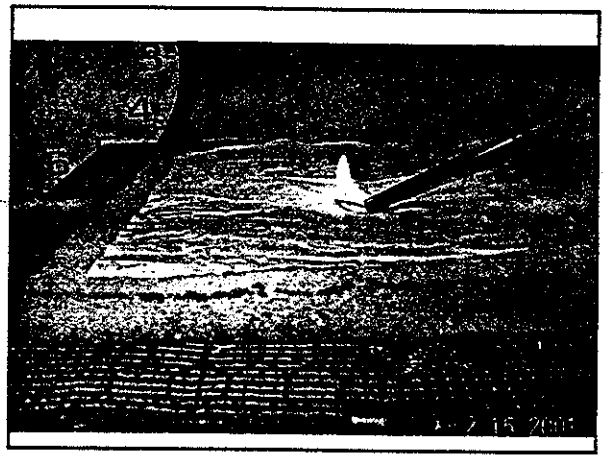


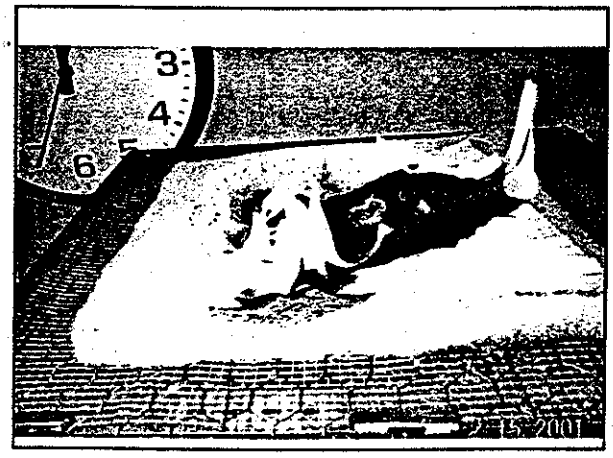


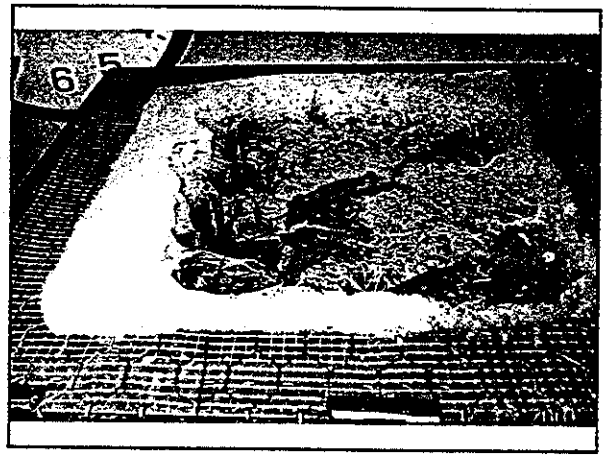












## *Direction of Revised Standard-Polyurethane Foam*

- Vertical Flame test (current Section A, Part I) with stricter failure criteria for char length and afterflame may be adequate to improve foam performance.
- Foamers would not need to purchase and install new test equipment.

## *Direction of Revised Standard-Polyurethane Foam (cont'd)*

- Vertical test does not distinguish between performance of more flame resistant (C.M.H.R., Melamine) foams-All have low char length and afterflame.
- Use of BS 5852 "Crib 5" ignition source (bench-scale mockup) w/ F.R. polyester fabric would be second option, but more costly and time consuming.

## *Direction of Revised 117 Standard-Cotton/Natural Fiber Battings*

- Drop vertical flame test requirement on cotton/natural fiber battings and replace with N.C.B.I. Sandwich Test (A.S.T.M. D-5238-98).
- Sandwich Test already used for fire performance Q.C. in cotton industry.
- Results correlate well with 117-D, pt. I and II, T.B. 116, 16 C.F.R. 1632 and open flame tests (117-B, pt. I, T.B. 129 and T.B. 133) for cotton-filled products.

## *Direction of Revised 117 Standard-Loose Fillings*

- Loose Filling materials- shredded polyurethane foam, polystyrene beads, ungarnetted synthetic fibers, feathers and down, unusual fills (buckwheat hulls, etc.)
- Require all to be encased in F.R. ticking which withstands penetration from open flame, as currently required for shredded, cellular foams.
- Polyurethane slabstock foams and synthetic staple fibers must be F.R.

## *Direction of Revised 117 Standard-Loose Fillings (Cont'd)*

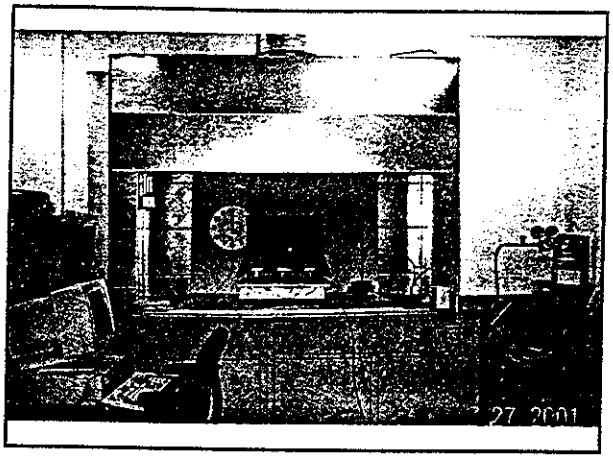
- Loose fill materials - Drop requirement for separate vertical flame testing of F.R. tickings encasing foams.
- Test options: A) Maintain shredded foam cushion test (117-D, pt. II) but increase impingement time from 12 to 20 seconds. B) Use B.S. 5852 Test Rig with 20 second flame source on crevice.

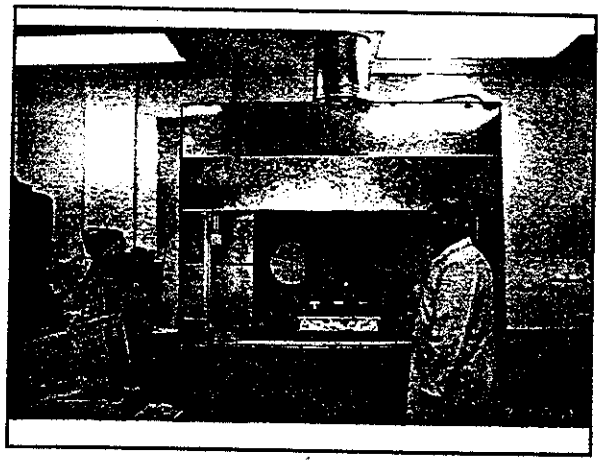
## *Direction of Revised 117 Standard - Composite Test*

- Core test to predict/verify overall fire performance of furniture article.
- Would allow test of

  A) actual finished article test or

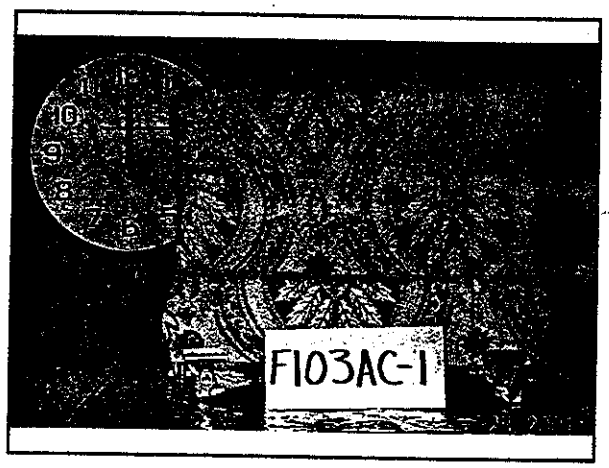
  B) composite assembly test of actual fabric and actual F.R. component fillings to be used in construction of furniture.

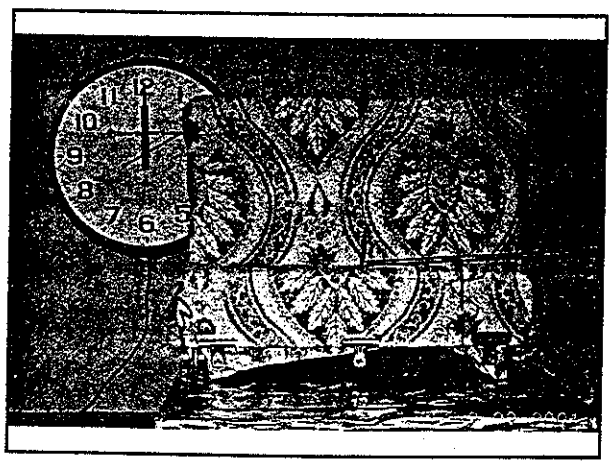


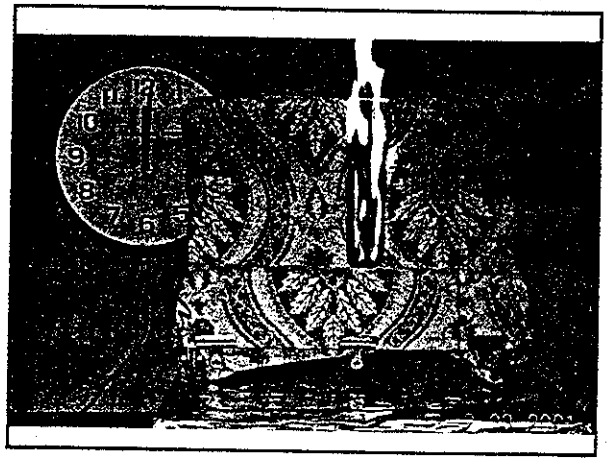


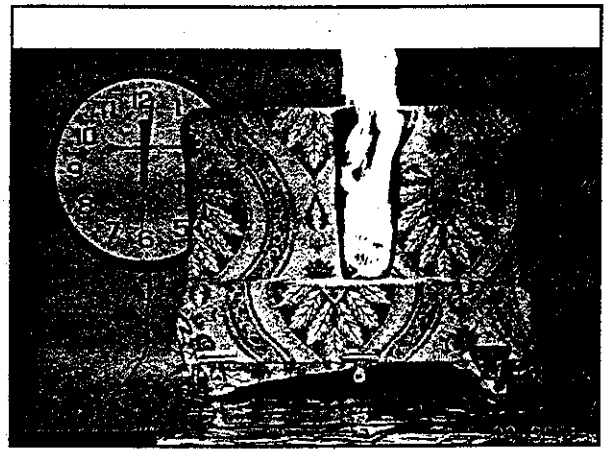
## *Research Composite Test Protocol*

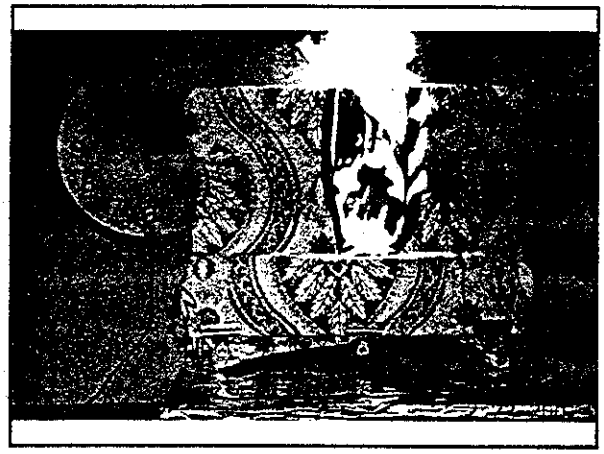
- B.S. 5852 test frame, 18 x 12 inch back, 18 x 6 inch seat, cushions 3 inch thick.
- Butane gas flame.
- 35 mm (1.4 inch) flame height.
- 20 second flame duration.
- Flame impinged in seat/back crevice.
- Consistent with parameters of British Standard 5852 and C.P.S.C. Draft Open-Flame Furniture Test Protocol.









## *Rationale for 117 Composite Test*

- Improvements in filling material fire performance decreases need for F.R. backcoating of fabrics (shared burden).
- Better predictor of real-world open-flame hazard of upholstered furniture than component tests alone.
- Predicts interactions between fabric and fill components, especially in early fire stage.

## *Rationale for 117 Composite Test (cont'd)*

- Allows manufacturers a quality assurance tool to verify final product meets minimal requirements without total reliance on suppliers.
- Provides higher level of fire-resistance redundancy than a fabric test or filling component test alone.
- Component tests can still be done by manufacturers, supply dealers or third-party laboratories and invoiced as "117".

## *Rationale for 117 Composite Test (cont'd)*

- Preserves wide range of fabric styles and filling material options.
- No separate fabric component test would be mandated (Drop 117- Section E- 45 degree flame test).
- Allows Fire-blocking barrier fabrics as option.

## *Future Work -117*

- Correlate small-scale component and bench -scale composite tests to full-scale (burn room) tests on finished furniture products.
- Develop Pass-Fail Criteria.
- Generate first draft of test protocol.
- Circulate to Industry and research organizations/labs- peer review.
- Produce final test standard draft after industry review.

## *Future Work-117 (cont'd)*

- Conduct inter-laboratory round robin testing to validate repeatability and reproducibility.
- Statistical analysis of data.
- Produce final draft based on round-robin results (maximize robustness of standard).
- Propose rulemaking based on agreeable standard and enact into California law.

## *Bureau Contacts*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# UFAC UPDATE

**Joseph Ziolkowski, Executive Director**
**March 6, 2001**

I am pleased to report that UFAC is very much alive and active.

The overall fire statistics continue to illustrate the effectiveness of our voluntary program to make upholstered furniture more resistant to ignition from smoldering cigarettes. Please note all residential fires are down 44.4% but upholstered furniture fires are down by 70% with fires ignited by smoking materials down 79.3%.

This past year has been an active one for both government and the private sector. Dale Ray, CPSC has been pursuing several options, Karen Hatchel and John McCormack, California Bureau of Home Furnishings & Thermal Insulation, have been active in researching possible revisions of TB 117 and UFAC has also been active.

Last year UFAC released a mission statement on upholstered furniture flammability announcing its intent to develop a standard to address the risk of injury from small open flame ignition of upholstered furniture provided that standard could meet certain conditions. Shortly thereafter, a Small Open Flame Technical Committee was established by the participants in the intra-industry coalition to pursue viable technical solutions to reduce the likelihood of deaths and injuries associated with upholstered furniture fires started by small open flames. The committee's objective is to develop a test method that consistently, reproducibly and quantitatively predicts the performance of upholstered furniture when exposed to small open flames, such as matches, lighters and candles.

Phase I is the development of a bench scale composite test method that predicts the burning behavior of upholstered furniture by using weight loss over time. Phase II is the development of component tests related to the composite tests. It is anticipated that the work of the committee will lead to the development of a program similar to the UFAC program for cigarette ignition resistance.

The committee consists of technical representatives from the following industry associations:

| | |
|---|---|
| API | Alliance for the Polyurethane Industry |
| ATMI | American Textile Manufacturers Institute |
| AFiMA | American Fibers Manufacturers Association |
| AFMA | American Furniture Manufacturers Association |
| CI | Cotton, Inc. |
| INDA | International Non-Wovens & Disposable Association |
| NNC | National Cotton Council |
| PFA | Polyurethane Foam Association |
| UFAC | Upholstered Furniture Action Council |

.....over

Currently the committee is collecting component materials and lining up the test laboratories to conduct the first round of tests.

During this April furniture market, UFAC will be introducing a new hangtag. The tag is simpler, easier to read and contains an added precaution about small open flame ignition from matches, candles and lighters. The 20% larger size also makes it more readable. The revised cover using safety warning is designed to gain the attention of the purchasers of the product. As in the past, we continue to use English, French and Spanish to benefit purchasers of upholstered furniture in all of North America where they may be limited comprehension of English. It also benefits the manufacturer who will be able to inventory just one type of hangtag for all of their retail customers in Canada, Mexico and the United States.

In conclusion, consistent with its past history, UFAC is committed to supporting government and private sector research based on three criteria: safe, effective, and salable. To be "safe", a solution must not introduce new risks to consumers, workers or the environment nor undermine the existing level of resistance to cigarette ignition. To be "effective", a solution must reduce the number of residential fires involving upholstered furniture and must not create a false sense of security to the consumer. To be "salable", a solution must result in furniture that is attractive, comfortable, durable and affordable. A solution that meets the criteria of safe, effective and salable could form the basis for an industry-supported standard for residential upholstered furniture.

We, the industry, including, suppliers, furniture manufacturers and retailers, have been and are making considerable contributions to reducing the over-all risk of fire in our homes.

We thank you for all the effort you put forth to make the program a success. Let's keep up the good work.