AFMA

AMERICAN FURNITURE MANUFACTURERS ASSOCIATION
Office For Government Affairs 918 16th Street NW Suite 402 Washington, DC 20006 Phone 202.466.7362

January 12, 1995

Mr. Dale R. Ray
Project Manager - Upholstered Furniture
Consumer Product Safety Commission
Washington, DC 20207

Dear Mr. Ray:

On behalf of UFAC, I want to express our appreciation for your letter of December 29, 1994. You request additional information concerning UFAC's stated commitment to consider adopting the best aspects of TB-117 as part of the UFAC Construction Criteria for upholstered furniture. In particular, you ask whether this commitment is a statement of intention to develop a voluntary standard to address small open flame ignition hazards.

In its comments on the ANPR, UFAC's expression of commitment was meant to satisfy the first part of Section 4(g) (6) of the FFA. However, basic research had to be done before the second part of this provision could be met, namely to provide a description of a plan to modify the UFAC Construction Criteria. UFAC's review of TB-117 and its underlying technical rationale is ongoing. Unfortunately, until it is complete, we are not able to provide you with the details you requested. Of course, an important consideration to UFAC and to the Commission is that any solution to the problem of small open flame ignition of upholstered furniture be cost-effective. Regardless, please be assured that this work has been given the highest priority by UFAC.

We are pleased to know that the CPSC will continue to share technical data and other information with UFAC as the standards development work progresses.

Sincerely,

Joseph G. Gerard
Vice President of
Government Affairs

cc: Mr. William Richman
Mr. Charles Carey
Mr. Joe Ziolkowski

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

December 29, 1994

Joseph G. Gerard
Vice President, Government Affairs
American Furniture Manufacturers Association
918 16th Street, NW, Suite 402
Washington, DC 20006

Dear Mr. Gerard:

Thank you for your letter transmitting the position of the Upholstered Furniture Action Council (UFAC) concerning the July 15 advance notice of proposed rulemaking (ANPR). In that letter you stated UFAC's commitment to "consider adopting the best aspects of (California) TB-117 as part of the UFAC Construction Criteria for upholstered furniture." Please provide clarification on the following two points:

(1) Does UFAC propose to modify its voluntary program (including its Construction Criteria and Component Certification program) to address small open flame ignited fire hazards, using either the California TB-117 test methods or some other appropriate methods?

(2) What is your plan--and approximate schedule--for carrying out the technical development and other work necessary to carry out any such modifications?

As you know, the ANPR solicited "statements of intention to modify or develop a voluntary standard to address the risk of injury identified in this notice, along with a description of a plan to do so," in accordance with provisions of section 4(g)(6) of the Flammable Fabrics Act (FFA) (15 U.S.C. 1193(g)(6)). The UFAC voluntary Construction Criteria and Component Certification program are considered to comprise a "voluntary standard" in this context. If the Commission determined that a voluntary standard submitted in response to the ANPR were in existence and would eliminate or adequately reduce the identified risk, and that it is likely there would be substantial compliance with that voluntary standard, the Commission would not issue a final mandatory flammability standard for upholstered furniture under the FFA (15 U.S.C. 1193(h)(2)).

Please advise us if UFAC's August 15 submission is intended to be a response to the portion of the ANPR soliciting statements of intent to modify a voluntary standard. If so, please provide details of your plan for accomplishing this modification.

As we have discussed, the CPSC staff intends to continue to share technical data and other information with industry as standards development work progresses. Thank you for your assistance in this matter and for UFAC's continuing cooperation with the Commission staff in our mutual efforts to enhance furniture fire safety. If I can be of further assistance, please give me a call at (301)504-0962.

Sincerely,

Dale R. Ray
Project Manager

cc: J. Ziolkowski

AMERICAN FURNITURE MANUFACTURERS ASSOCIATION
Office For Government Affairs 918 16th Street NW Suite 402 Washington, DC 20006 Phone 202.466.7362

March 3, 1995

The Honorable Ann Brown
Chairman
U.S. Consumer Product Safety Commission
Washington, DC 20207

Dear Chairman Brown:

We were pleased to hear about your recent Congressional testimony, in which you recognized the significant progress made by the Upholstered Furniture Action Council (UFAC) in reducing the cigarette ignition of upholstered furniture. Your comments heartened our manufacturers, who are proud of UFAC's role in reducing cigarette ignition, by far the largest cause of upholstered furniture fires.

At the Senate Appropriations hearing, you stated that you do not contemplate a mandatory regulation on cigarette ignition. Considering the dramatic declines in cigarette ignition of upholstered products since UFAC's inception (approximately 74 percent), and the high rate of industry compliance demonstrated by the Heiden survey (a minimum of approximately 90 percent), we concur that a mandatory regulation in this area is unnecessary. Consequently, it would be reasonable to lay the cigarette portion of the NASFM petition to rest.

On the topic of small open flame ignition, UFAC recently completed tests comparing the performance of flame retardant (TB-117) polyurethane foam with conventional polyurethane cushions. The tests reveal, at best, only marginal additional protection afforded by the more costly TB-117 in small open flame scenarios. This is consistent with past findings of the Commission. (The results of these tests will be published in the near future and will certainly be shared with the Commission on a timely basis.) The other existing regulatory options appear to entail a quantum leap in increased cost that would slow the acceptance of new product into the market, particularly for less affluent consumers. Of course, UFAC will continue its search for more promising technological solutions, and in doing so, will also continue to work cooperatively with the agency.

Sincerely,

Joseph G. Gerard
Vice President of
Government Affairs

cc: The Honorable Christopher (Kit) Bond
The Honorable Mary Sheila Gall

Committee E-5 on FIRE STANDARDS

Chairman: GORDON E. HARTZELL, Hartzell Consulting, Inc., 3318 Litchfield Dr., San Antonio, TX 78230-4006 (210-696-2995) FAX: 210-696-2995
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Membership Secretary: RODNEY A. McPHEE, Canadian Wood Council, Ste. 350, 1730 St. Laurent Blvd., Ottawa, ON, Canada K1G-5L1 (613-247-7077) FAX: 613-247-7856
Staff Manager: PEGGY L. CICCHITTI (610-832-9728)

December 26, 1996

Mr. Dale R. Ray
Directorate for Economic Analysis
Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

Dear Mr. Ray: —

This is a response to the CPSC on the recent activities of the new ASTM E05.15 flammability Task Group (TG) on Small Open Flame Ignition of Upholstered Furniture. The first meeting of this TG was held on November 10 at the larger ASTM meetings in New Orleans. The group as a whole at this meeting felt it was necessary to verify the necessity of a small open flame test before proceeding with technical work. The fact that the large body of data/evidence now compiled by CPSC is not yet available to the committee was a limiting factor. With that in mind, we drafted and approved a scope for this new TG, which reads as follows:

> "The Task Group (TG) will evaluate the need for a small open flame test for upholstered furniture. The TG will do this beginning with a review of the CPSC report to be issued, with supporting data. If a need for a test is determined, the TG will work to evaluate whether an existing small open flame test is acceptable and, if not, develop a small open flame test for upholstered furniture. If this need is determined, the TG will review and evaluate the open flame test protocol issued by the CPSC as a possible test method."

Many well-qualified people at the open meeting in New Orleans expressed an interest in participating in the TG, but the ASTM recommends only a small number of people actually participate in a working group. With this in mind, we have chosen the following six people to participate on the TG (although meetings of the TG will be open for anyone to attend):

Kurt Reimann, BASF Corp., TG Chair
Frank McGarry, Consultant to the National Assoc. of State Fire Marshalls
Russ Kidder, Fire Retardant Chem. Assoc.
Hugh Talley, Consultant to the American Furniture Manuf. Assoc.
Kay Villa, American Textile Manuf. Institute
Art Grand, Omega Point Labs

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We feel that these people represent a fair mix of interests; and they will be able to do a good job of reviewing existing data and then, if justified, develop a small open flame test for upholstered furniture. Our TG will look forward to receiving input on test method development from CPSC employees. If it is possible to share information gathered by CPSC on this issue with our TG before the public briefing, that could provide us with direction we could use to start our efforts more quickly than if we wait until after your briefing. Please let us know if this is possible. Thank you.

Sincerely,

T. W. Fritz /cag

Tom Fritz
Armstrong World Industries, Inc.
Chair ASTM E05.15

K. A. Reimann /cag

Kurt A. Reimann
BASF Corporation
Task Group Chair

CAG

Dr. Kurt A. Reimann
Research Manager, Polymer Physics
BASF Corporation
1609 Biddle Avenue
Wyandotte, MI 48192

T. W. Fritz

Committee E-5 on FIRE STANDARDS

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Staff Manager: BODE BUCKLEY (610-832-9740) e-mail: bbuckley@astm.org

May 9, 1997

Mr. Dale Ray
Project Manager,
Upholstered Furniture Flammability
Directorate for Economic Analysis
Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

Dear Dale:

As earlier indicated, the ASTM E-5.15 Task Group on Open Flame Ignition of Upholstered Furniture has been collecting background information on small open flame tests to evaluate their usefulness in potentially identifying or developing a small open flame test for upholstered furniture. Examples of tests the TG may review and consider include the following:

- the CPSC test protocol
- BS 5852
- Cal. TB 117
- UL 94
- NFPA 701
- the Methenamine Pill test
- MVSS 302

The ASTM Task Group is committed to doing a credible technical job of responding to the Consumer Product Safety Commission's request for industry action on a voluntary standard.

The Task Group continues to believe that the data gathered by the CPSC staff, which we understand will be released in your report due out in June, will provide critical information that will be essential for our Task Group to move forward, once our data collection process is complete. As fire and testing scientists and concerned professionals, we all know that furniture flammability is a complex area, involving the interplay between the various components involved, the geometry of the chair, its configuration, the ignition site (e.g., the seat, dust cover and skirt) and ignition source (e.g., lighter, candle or matches). Because we are confident that you agree the Task Group's work, to be meaningful to consumers, must be based on real world data, we look forward to seeing the CPSC report this summer so that we can provide thoughtful, scientifically based recommendations to all concerned parties. Please send me a copy of the CPSC report as soon as possible.

Please do not hesitate to call if I can be of any assistance or if you would like to discuss this matter further.

Sincerely,

KA Reimann

Kurt A. Reimann
BASF Corporation
Chair, ASTM E-5.15 Task Group

cc: Tom Fritz
ASTM E-5.15 Chair

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ASTM

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July 2, 1997

Mr. Dale Ray
Project Manager
Upholstered Furniture Flammability
Directorate for Economic Analysis
Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

Dear Mr. Ray,

By copy of this letter, I am forwarding to you a request from ASTM Committee on E05 to obtain from the Consumer Product Safety Commission a report of data collected for small open flame tests for upholstered furniture.

Your favorable response to this request is appreciated.

Sincerely,

James A. Thomas

James A. Thomas
President

Committee E-5 on FIRE STANDARDS

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Staff Manager: BODE BUCKLEY (610-832-9740) e-mail: bbuckley@astm.org

June 19, 1997

Mr. Dale Ray
Project Manager,
Upholstered Furniture Flammability
Directorate for Economic Analysis
Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

Dear Dale:

The ASTM E-5.15 Task Group on Open Flame Ignition of Upholstered Furniture met on June 10, June 16 and June 18. As we said we would do in earlier correspondence to CPSC, this TG has started to review existing small open flame methods with the approach that elements of some of these methods or standards may be useful in the development of a new, or adoption of an existing small open flame test for upholstered furniture. As an aid in reviewing and comparing the methods, we developed spreadsheets (attached) containing the more important test parameters. This comparison, of course, includes information on the CPSC proposed test protocol.

The TG still feels strongly it will be very difficult to proceed effectively with a more thorough review of these methods and subsequent work without direction from the CPSC in the form of your report on this subject. We understand that the report is now in the CPSC review process and will be available in the coming months. However, again, if it is possible to share data which would help us do our job, please communicate that data to this TG through me as soon as possible. I hope you can understand the TG feels frustrated by not having the tools we believe we need to perform this work and produce results that are timely for your needs as we understand them.

The TG is looking forward to cooperation with CPSC in developing a small open flame test for upholstered furniture. If possible, please provide us with specific direction on what more immediate steps the agency believes we may take at this time, before your report is finalized and made public.

Please do not hesitate to call if I can be of any assistance or if you would like to discuss this matter further.

Kurt A. Reimann
BASF Corporation
Chair, ASTM E05.15 Task Group

Tom Fritz
Armstrong World Industries
Chair, ASTM E05.15

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Committee E-5 on FIRE STANDARDS

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Staff Manager: BODE BUCKLEY (610-832-9740) e-mail: bbuckley@astm.org

Minutes of Open Flame Ignition of Furniture Task Group
June 10, 1997 (ammended 6/16/97) and from 6/16/97and 6/18/97 TG meetings in St. Louis
ATMI, Washington, DC

The Task Group met on the above date with the following members present.

Kurt Reimann, Chair, Phone 313-246-6344 Fax 313-246-6818
Frank McGarry, Phone 518-482-1801 Fax 518-453-9647
Russ Kidder, Phone 717-291-5616 Fax 717-295-9637
Kay Villa, Phone 202-862-0518 Fax 202-862-0570
Hugh Talley, Phone 423-587-3002 Fax 423-587-1585
Tom Fritz, Secretary for the meeting, Phone 717-396-5679 Fax 717-396-5865

Art Grand was not able to be at this meeting, Phone 210-635-8100 Fax 210-635-8101

The Task Group wishes to thank Kay Villa and ATMI for the excellent meeting facilities, and the lunch.

The Task Group previously received copies of the following small-scale open flame ignition test methods for review.

the proposed CPSC test protocol
BS 5852
Cal TB 117
UL 94
NFPA 701
MVSS 302

In addition, the methenamine pill test (DOC FF 1-70, and ASTM D2859-93a) were distributed at the meeting.

The lack of laboratory test data and field information regarding the scenarios surrounding open flame ignitions of upholstered furniture was again discussed. Several members of the Task Group have been in contact with CPSC, and yet no information has been made available for review. Thus, the Task Group feels it is acting in the dark relative to consideration of various possible candidate test methods. These requests for information have been both verbal and in writing from the Task Group.

It is understood that a briefing package has been prepared by the CPSC staff, is in their internal review procedure, and will be presented to the Commission in several weeks. The timing is unclear at this time. Until the commission is presented with the staff report, it will not be possible for ASTM to obtain any information about the field incidence data.

Hugh Talley mentioned that he had reviewed the 50 IDI's collected by CPSC over a 10 year period, and in his opinion, found no justification for a test standard as described in the CPSC proposed test method. It was reported that approximately 70 more IDI's have been added to the file within the last 3 years, but these are internal documents and are not yet available.

The petition presented to CPSC by the National Association of State Fire Marshals was reviewed. The NASFM recommended that CPSC adopt the CA 117 test in the case of small open flame ignition.

A brief review of the current UFAC program was presented. Although it is a voluntary program, there is internal industry supervision to monitor manufacturers in the program. A voluntary program with third party supervision would be considered by the NASFM with regard to their current CPSC petition.

Following the initial general discussion, it was decided to develop a matrix to aid in the review of the several test methods available to the Task Group. Thus, the individual features of each test can be more easily compared. In putting the matrix together we tried to encompass as many test parameters as we could. It is very possible that as we fill it out a number of changes will have to be made. At the end of the meeting, assignments of individual test methods to be reviewed by the next meeting were made. Again, if anyone knows of other small open flame test methods which may contain useful information for the development of an upholstered furniture test, please inform Kurt Reimann.

The Task Group decided to meet again at the ASTM E5 meeting in St. Louis during the week of June 16.

At the June 16 TG meeting, data for most indicated test methods was discussed and added to the 4 spreadsheet matrices, attached. At this time the data has not been reviewed in detail and is therefore only in draft status.

At the June 18 TG meeting, a decision was made to draft a letter to the CPSC showing the progress we made (as promised at the spring ASTM TG meeting) by way of the spreadsheets and ask what the TG could do at this time to make progress on the issue.

Draft Meeting Minutes

Comparison of Small Open Flame Test Parameters

	CPSC-Seat	CPSC-Dust	CPSC-Skirt
Flame Charater.			
Height	35mm	35mm	35mm
Shape			
Diffuse or Pre-mix	Diffuse	Diffuse	Diffuse
Heat output			
Gas type	Butane, c.p.	Butane, c.p.	Butane, c.p.
Gas flow	45 ± 2mL/min at 25C, 27.5 mBar pressure	45 ± 2mL/min at 25C, 27.5 mBar pressure	45 ± 2mL/min at 25C, 27.5 mBar pressure
Calibration	Yes, to flame height	Yes, to flame height	Yes, to flame height
Burner	7.94mm O.D., 0.89mm thick, 254mm ± 5mm	7.94mm O.D., 0.89mm thick, 152mm ± 5mm	7.94mm O.D., 0.89mm thick, 152mm ± 5mm
Flame, Misc.			
Dist. of flame	Intimate	35 mm	35mm
Exposure time	15 sec.	5 sec.	5 sec.
Flame orientation	Horizontal	Verticle	Verticle
Melt/Dripping	No	Must record	Must report
Flaming drips	No	Must record	Must record
Ablation	No	No	No
	450 x 83 x75 mm foam		
Specimen	450 ± 5mm x 300 ± 5mm x 75mm ± 2mm foam		
Size	cover-1018+5mm x 700+5mm	30.5 x 30.5 cm	30.5 cm x actual height
Shape			Flat to tailored to pleated
Test Orientation	Crevice, mock-up	Horizontal	Verticle
Composite	Yes	No	Yes, possible
Component	No	Yes	Yes, possible
Substrate	No	No	No
Conditioning	25 ± 2C, 45-50% R.H., 24 Hrs., within 10 min.	25 ± 2C, 45-50% R.H., 24 Hrs., within 10 min.	25 ± 2C, 45-50% R.H., 24 Hrs., within 10 min.
Number tested	4	4	4
Specify Mfg. Orient.	No	No	No

Draft Document

Comparison of Small Open Flame Test Parameters

	CPSC-Seat	CPSC-Dust	CPSC-Skirt
Test Rig			
Environment	10 to 30C, 20 to 70%, or test within 10 min.	10 to 30C, 20 to 70%, or test within 10 min.	10 to 30C, 20 to 70%, or test within 10 min.
Auto/manual	Auto	Auto	Auto
Cost	High	High	High
Configuration	Seat crevice	Horizontal	Verticle
Size	???	???	???
Flame shield	No	Yes	Yes
Special features	Electronic control of flame/burner	Electronic control of shield	Electronic control of shield
Calibration	Yes, for positioning	Yes, for positioning and shield time	Yes, for positioning and shield time
Safety/Hazards			
To operator	Moderate	Low	Low
To lab/instrument	Low	Low	Low
Early termination	Yes, top of cushion within 2 min.	Yes, if flame to edge of sample in 2 min.	Yes, top of sample
Pass/Fail Criteria			
Flaming time	Record, criteria not yet established	Record, criteria not yet established	Record, criteria not yet established
Flame distance	Record, criteria not yet established	Record, criteria not yet established	Record, criteria not yet established
Char length	No	No	No
Glow time	Record, criteria not yet established	Record, criteria not yet established	Record, criteria not yet established
Weight loss	No	No	No
Heat Release	No	No	No
End of test	Yes, 2 min. or failure	Yes, 2 min. or failure	Yes, 2 min. or failure
Report	Yes	Yes	Yes

Draft Document

Comparison of Small Open Flame Test Parameters

	BS 5852, Source 1	BS 5852, Source 4	UL 94-Verticle	UL 94-Horizontal
Flame Charater.				
Height	35 mm	40 cm^3 Crib	20 mm	20mm
Shape	Blue flame, yellow tip		Blue flame, yellow tip	Blue flame, yellow tip
Diffuse or Pre-mix	Diffuse		Diffuse	Diffuse
Heat output			N/A	N/A
Gas type	Butane	Wood, 8.5 g ± 0.5 g	Methane	Methane
Gas flow	45 mL/min ± 2 mL/min		105 mL/min, 10mm water back pres	105 mL/min, 10mm water back press
Calibration	Flow rate		ASTM, D-5207, once/week	ASTM, D-5207, once/week
Burner	Tube		Bunsen, 100mm x 9.5mm (D-5025)	Bunsen, 100mm x 9.5mm (D-5025)
Flame, Misc.				
Dist. of flame	< 50 mm	Intimate	overlap specimen by 10mm	overlap specimen by 6mm
Exposure time	20 sec ± 1 sec.	10 min. sustaned ignition	10 sec.	30 sec.
Flame orientation	Crevice	Crevice	Verticle if non-dripping (45°drips)	45°
Melt/Dripping			Yes	No
Flaming drips	Yes	Yes	Yes	No
Ablation			No	No
Specimen				
Size	Back 450x300x75mm/Seat 450x150	Back 450x300x75mm/Seat 450x150	13 x 125 mm	13 x 125 mm
Shape	Mock-up	Mock-up	Bar	Bar
Test Orientation	Crevice	Crevice	Verticle	Horizontal
Composite	Yes	Yes	Possible, depends on material	Possible, depends on material
Component	Yes	Yes	Yes	Yes
Substrate	No	No	No	Wire gauze
Conditioning	Foam 20C, 50% R.H.,16 Hrs.	Foam 20C, 50% R.H.,16 Hrs.	23C, 50% R.H., 48 Hrs.	23C, 50% R.H., 48 Hrs.
Number tested	???	???	5 to 10	3
Specify Mfg. Orient.	No	No	No	No

Draft Document

Comparison of Small Open Flame Test Parameters

	BS 5852		UL 94-Verticle	UL 94-Horizontal
Test Rig				
Environment	Draft free, 23±7C, 45%±25% R.H.	Draft free, 23±7C, 45%±25% R.H.	15-35C, 45-75% R.H.	15-35C, 45-75% R.H.
Auto/manual	Manual	Manual	Could be either	Manual
Cost	Moderate	Moderate	Moderate	Moderate
Configuration	Metal Frame, Seat Mock-up	Metal Frame, Seat Mock-up	Verticle	Horizontal
Size	450x300x150mm	450x300x150mm	Small	Small
Flame shield	No	No	No	No
Special features	No	No	Use cotton for determination/drips	Scale, ruler
Calibration	No	No	No	No
Safety/Hazards				
To operator	Moderate	Moderate	Low	Low
To lab/instrument	Low	Low	Low	Low
Early termination	Yes, if burns to end of specimen	Yes, if burns to end of specimen	Yes, if one sample burns to end	Yes, if one sample burns to end
Pass/Fail Criteria				
Flaming time	> 2 min. = Failure	> 10 min. = failure	Yes, see chart in standard	40 or 75 mm/min. depending on thic
Flame distance	= to edge of sample = Failure	= to edge of sample = Failure	Yes, see chart in standard	if < 75 mm = pass
Char length	No	No	No	No
Glow time	No	No	Yes, 30 to 60 sec.	No
Weight loss	No	No	No	No
Heat Release	No	No	No	No
End of test	Flaming Ignition	Flaming Ignition	2 appl of flame for each of 5 samples	Failure, see above
Report	See Sec. 14, p. 24 of 1990 Std.	See Sec. 14, p. 24 of 1990 Std.	Yes, Melting & dripping important	Yes

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Comparison of Small Open Flame Test Parameters

	NFPA 701, Small	NFPA 701, Large	MVSS-302	'Pill Test'
Flame Charater.				
Height	100 mm ± 10 mm	280 mm ± 12 mm	1 1/2"	appr. 2.54 cm.
Shape	Triangular	Long, yellow		Undefined
Diffuse or Pre-mix	Pre-mix, 895 mL air to burner	Diffuse	Diffuse	Diffuse
Heat output	Can be calculated	~25-31x10^6 Joules/m^3	= heat output of natural gas	???
Gas type	97% Methane	97% Methane	natural gas	
Gas flow	1205 mL/min. ± 35 mL/min	113 ± 3 L/Hr.		
Calibration	Yes,in vertical position(to flow rate)	Yes,in vertical position(to flow rate)		
Burner	Meeker	Bunsen, 9.5 mm diameter	Bunsen burner, 3/8" tube	
Flame, Misc.				
Dist. of flame	25 mm from burner tip to sample	100 mm from burner tip to sample	Burner 3/4" below sample	Intimate contact
Exposure time	45 sec.	2 min.	15 sec.	???
Flame orientation	Horizontal, 90° to sample	25° from verticle		Intimate contact
Melt/Dripping	Yes	Yes		No
Flaming drips	Yes	Yes		No
Ablation	Yes	Yes		No
Specimen				
Size	150 mm x 400 mm	1.2 m x 280 mm	4"x14"x1/2"	23 cm^2
Shape	Rectangular	Flat or pleated	Rectangular	Square
Test Orientation	Yes, length of the goods	Verticle but either flat or pleated	Horizontal	Horizontal
Composite	Yes	Yes	Yes	No
Component	Yes	Yes	Yes	Yes
Substrate	No	No	Actual end item	Yes, non-combustable base
Conditioning	105C for 30 min.	105C for 1 to 3 Hrs.	24 Hrs, 70F, 50% R.H.	105C, 2Hrs., then desicate
Number tested	10	Flat = 10, Pleated = 4	???	8
Specify Mfg. Orient.	Yes, length of goods	Yes, legth of goods	Provide most adversarily cond.	No

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Comparison of Small Open Flame Test Parameters

	NFPA 701		MVSS-302	'Pill Test'
Test Rig				
Environment	Performed in 2 min.of sample cond.	15C + 10C, R.H. < 70%, test in 2 mi	in hood	Test within 2 min. of sample cond.
Auto/manual	Manual	Manual	Manual	Manual
Cost	Moderate	Moderate	Low	Low
Configuration	Verticle	Verticle		Horizontal
Size	67.5 cm x 50 cm x 70 cm	305mm x 305mm x 2.13m	15"x8"x14"	Frame 30.48 cm^2 x40.48 cm
Flame shield	No	No	Yes	No
Special features	Marinite board			None combustable material
Calibration	No	No		
Safety/Hazards				
To operator	Moderate	Moderate	Low	Moderate
To lab/instrument	No	Moderate	Low	Low
Early termination	No	No	N/A	No
Pass/Fail Criteria				
Flaming time	Must record, not a pass/fail criteria	Must record, not a pass/fail criteria	< 4"/min.	No
Flame distance	No	No	< 2" = pass	2.54 cm from perimeter of frame
Char length	No	Yes, > 430 mm flat,>1055mm pleated		2.54 cm from perimeter of frame
Glow time	No	Must record, not a pass/fail criteria		Record
Weight loss	if < 40% = pass	No		No
Heat Release	No	No		No
End of test	No	If ablated material >2min. = fail	No	If flame > 2.54 cm
Report	Yes	Yes	Yes	Yes

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Comparison of Small Open Flame Test Parameters

	TB 117-1 (Foam)	TB 117-2 (Fabric)
Flame Charater.		
Height	1.5"	0.625"
Shape		
Diffuse or Pre-mix	Diffuse	Diffuse
Heat output		
Gas type	Matheson B	Butane
Gas flow		
Calibration	Flame Height	Flame Height
Burner		
Flame, Misc.		
Distance of flame	0.75"	0.313"
Exposure time	12 sec.	1.0 sec
Flame orientation	Verticle	45°
Melt/Dripping	Observe[1]	Observe and note
Flaming drips	See above	Observe
Ablation		

[1]Burning and glow time not to exceed 5 sec. after max. char length attained.

Specimen		
Size	12x3x0.5"	2x6"
Shape	Rectangular	Rectangular
Test Orientation	Verticle	45°
Composite	No	No
Component	Yes	Yes
Substrate	No	No
Conditioning	70F, 50% R.H.	Mounted spec. 105C, 30 min., Desicc.< 15 min.
Number tested	10, if one fails retest, see standard	10, if one fails retest, see standard
Specify Mfg. Orient.	No	Yes

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Comparison of Small Open Flame Test Parameters

	TB 117-1 (Foam)	TB 117-2 (Fabric)
Test Rig		
Environment	70F, 55% R.H.	70F, 55% R.H.
Auto/manual	Manual	Semi-Automatic
Cost	Low	Moderate
Configuration	Cabinet	Cabinet
Size	30x13.5x13.5", with see through front door	20.5x14.5x13", with see through front door
Flame shield	No	No
Special features	No	If sample exp. to flame stops, stop the test
Calibration	Flame height	Flame height
Safety/Hazards		
To operator	Low	Low
To lab/instrument	Low	Low
Early termination	No	No
Pass/Fail Criteria		
Flaming time		Yes, Type I, II, or III - see standard
Flame distance		
Char length	6" ave., but no value > 8"	
Glow time	5 sec. max.	
Weight loss		
Heat Release		
End of test	Cessation of all glowing and flaming	When all flaming and glowing stops
Report	Yes	Yes