

Approved Materials List

Scott Campbell
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March 7, 2017
IAMFTWG- Mobile, Alabama

Task Group Background

- In 2013, The ICCAIA (International Coordinating Council of Aerospace Industries Associations) made a request that FAA create an industry task group to formulate a process to develop an approved materials list.



International Coordinating Council of Aerospace Industries Associations

c/o AeroSpace and Defence Industries Association of Europe
Rue Montoyer 10
1000 Brussels
Belgium
info@iccaa.org www.iccaa.org

27th August 2013
ICCAIA/AC/067

Jeff Duven
Manager, Transport Airplane Directorate
FAA Northwest Mountain Region – Transport Airplane Directorate
1601 Lind Avenue SW
Renton, WA 98057
United States of America

Subject: Flammability ARAC Follow-up

Reference:

- a) ARAC-TAEIG Recommendation, Materials Flammability Working Group, C.R. Bolt to Margaret Gilligan, August 10, 2012
- b) ARAC Report:
http://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm?document/information/document/D912 . For excerpts of the Executive summary, see the attachment to this letter.
- c) FAA Tasking Notice, ARAC Tasking, Materials Flammability, Federal Register, August 27, 2010

Dear Mr Duven,

In July of 2012, the ARAC Materials Flammability Working Group released its final report and recommendations regarding a future flammability regulation. The TAEIG parent committee submitted the report to the FAA on August 10, 2012 (ref a & b).

The Cabin Safety Working Group (CSWG) is providing this formal response in support of all the ARAC recommendations. As proposed by the FAA in the Tasking Notice (ref c), this comprehensive regulation reform requires substantial development in many areas as reported by the ARAC. The CSWG is in full agreement with the TAEIG stating that it is critical that several development activities need to be completed before an NPRM is released for public comment. The CSWG would like to request that the FAA provide input on the status to initiate activities to complete the development activities as published in the ARAC report. It is also requested that the FAA provide a general time frame that the NPRM will be released.

With the substantial work needed, the CSWG specifically recommends that the following topics be initiated within the existing Task Groups of the Fire Test Working Group:

- 1) AC Guidance for all new and modified test methods.
- 2) Test method hierarchy and listing of other acceptable industry test standards (e.g. UL94 V0).
- 3) Development of approved materials lists.
- 4) Develop strategy and criteria to perform compliance using "flammability analysis."
- 5) Applicability definition of the new flame propagation test requirements for inaccessible areas.

It should also be noted that some of the above activities and the output will have considerable value to industry within the context of the current regulation, and after being documented can be implemented through FAA policy.

What is an Approved Materials List?

A database of qualified raw materials/ constructions that have been regulatory certified to FAA flammability requirements.

Bunsen Burner
Heat Release
Smoke
Radiant Panel
Cargo Oil Burner
Other Newly Proposed Test Methods

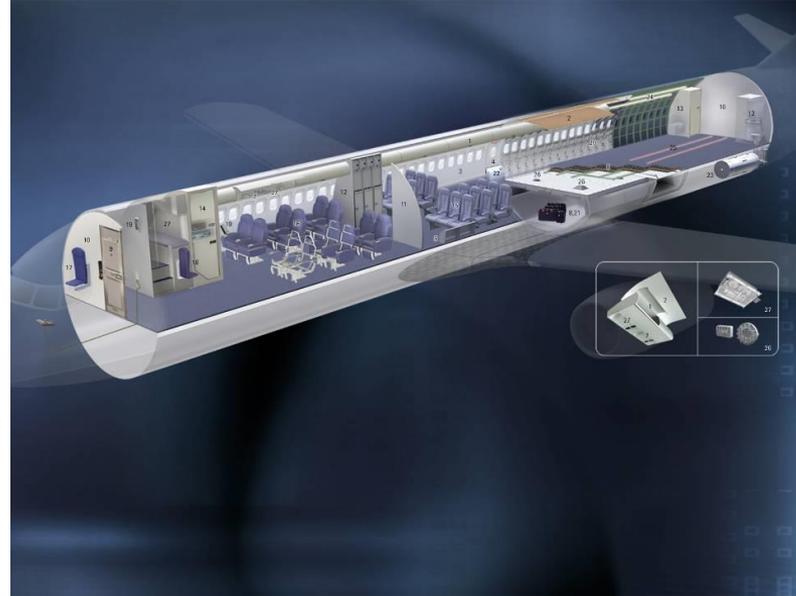
Material selection from this database would require no further flammability certification testing

¹ End Users would still be required to validate database data is applicable for proposed airplane application.

What Types of Materials?

- Plastics
- Bare Panels
- Carpets
- Textiles
- Electrical Wires
- Tapes¹
- Adhesives¹
- Placards¹
- Hook and Loop¹
- Rub Strips¹
- Insulation Systems (25.856(a))
- Ducting, Foams, etc.

¹ See Policy Statement



Approved Materials List Benefits

Material Manufacturer's Benefits

- Increase Sales and Market Share- Many End User companies would select materials from this list to avoid certification testing activities.
- Certify listed Materials one time (vs. assisting every end user certifying separately)

End User Benefits

- Reduce certification costs.
- Improve project Schedule.

Overall Benefit

- Eliminate Redundant Certification Costs

Approved Material List Database

Key Activities

- I. Develop Listing Specification
- II. Select a Database Host and Determine Costs
- III. Develop New Regulatory Certification Path to Use Database Materials
- IV. Determine Material Manufacturers' Interest to list products!!!



Develop Listing Specification

Key Sections Considered for further development:

- Scope
- References (Regulatory applicability, Policy Statement PS-ANM-25.853-01-R2, etc.)
- Accepted laboratories
- Listing Entity and Responsibilities
- Database data fields
- Listing Process (Including Regulatory and Expert Oversight)
- Continued Compliance (Regular QA oversight testing)
- Use of product data to support similarity
- Requalification Criteria

Select a Database Host and Determine Costs

- Several Industry Database Models Explored
- Best Fit- PRI (Products Research Institute)
- PRI requires a Qualified Products Group (QPG) to authorize product listings which will be comprised of the FAA and industry experts.
- Listing Fees Estimation per product or family of products (excluding testing costs)
 - \$500-1000 initial listing
 - \$800 annual maintenance



Gauging Material Manufacturer's Interest

The Entire Concept depends on Material Manufacturers listing products.

Completion of previously noted activities depend on Material Manufacturers interest in listing products.

Gauging Interest- a survey!

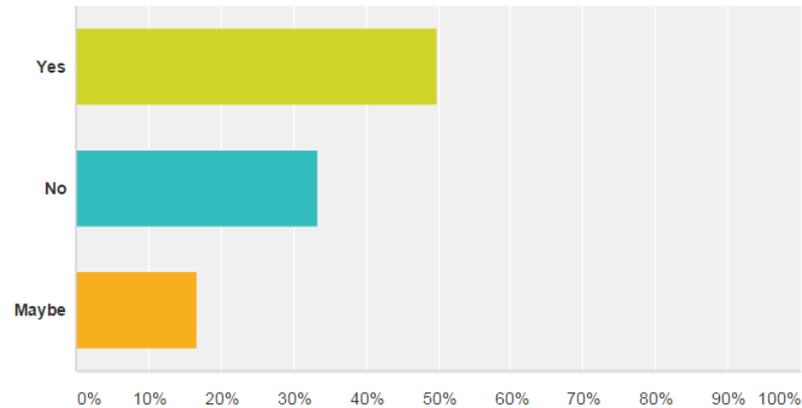


Survey Says...not much

6 responses to be exact:

Would your company be interested in listing products on the proposed FAA Approved Material List?

Answered: 6 Skipped: 0



Survey Says...

“NO” Reason listed:

Would not apply to products associated with our business (custom textiles businesses frequently targeting business jets)

“MAYBE” Reason listed:

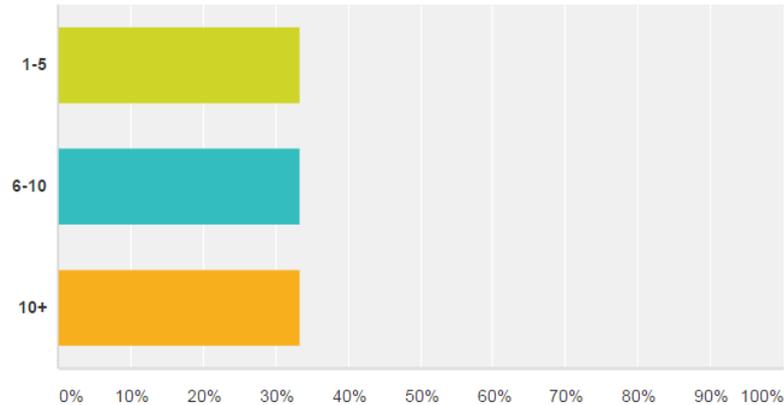
End user’s Supply Chain must qualify/ approve all material sources.

Survey Says...

The “YES” Votes Responded:

Approximately how many separate products or families of products would you consider listing?

Answered: 3 Skipped: 3



- 1st QTR 2017- Compile Survey Results*
 - 2017-2018 (if survey is positive)- AML up and running!
- * Audience flash poll response at the Triennial suggested many more companies would consider listing products.



Today's Task Group Meeting Goals

- Go/ No Go decision
- If Go
 - Assign Listing Specification sections and deadlines for task group members.
- If No Go:
 - Task group to generate report documenting the project with recommendations to the ICCAIA that could further develop the project.



HRR: Mechanically Fastened Materials

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Effects of Engineered Gaps

- Long Standing Question

What gap (if any) is necessary before an exposed substrate may be separated from a mechanically fastened back substrate and tested for HRR and smoke independently?

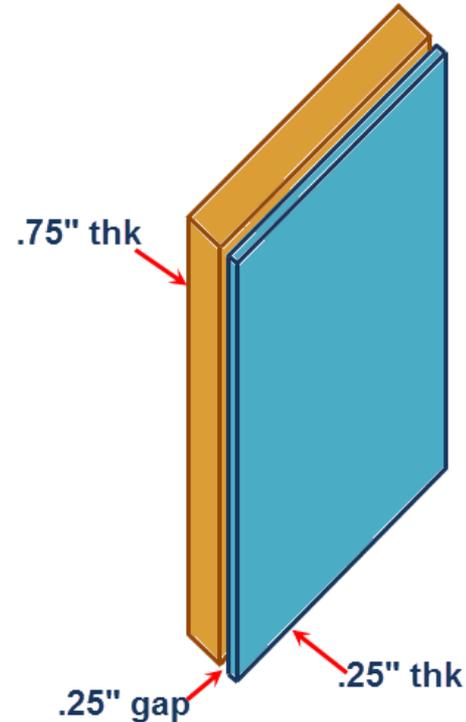


Effects of Engineered Gaps

- Initial Kickoff Plan

Run 3 sets of tests:

1. Decorated .25" panel alone
2. Same as 1/ except add a .75" thick bare panel to the backside with intimate contact
3. Same as 2/ except add a .25" gap between the two panels.



Results of 2 Labs

- Initial Kickoff Plan

Run 3 sets of tests:

1. Decorated .25" panel alone
2. Same as 1/ except add a .75" thick bare panel to the backside with intimate contact
3. Same as 2/ except add a .25" gap between the two panels.

HRR Gap Testing ZHT

.250 PANEL ONLY		.250" PANEL/.750" PANEL/WITH CONTACT		.250" PANEL/.750" PANEL/WITH .250" GAP	
1017-381-ENG		1053-001-ENG		1053-002-ENG	
L1: Aertrim L2: 3M SCOTCHWELD 10 ADHESIVE L3: 2 ply/ 2ply .25" thick phenolic glass/ Nomex Honeycomb panel.		L1: Aertrim L2: 3M SCOTCHWELD 10 ADHESIVE L3: 2 ply/ 2ply .25" thick phenolic glass/ Nomex Honeycomb panel. L4: 2 ply/ 2ply .75" thick phenolic glass/Nomex honeycomb panel		L1: Aertrim L2: 3M SCOTCHWELD 10 ADHESIVE L3: 2 ply/ 2ply .25" thick phenolic glass/ Nomex Honeycomb panel. L4: 2 ply/ 2ply .75" thick phenolic glass/Nomex honeycomb panel	
Peak	2 min	Peak	2 min	Peak	2 min
30.6	36.7	33.7	24.7	29.8	29.7
34.9	38.0	*66.0	17.8	25.1	26.2
33.3	23.6	*46.4	18.5	31.4	35.4
		27.1	18.7		
Avg 32.9	Avg 32.8	Avg 43.3	Avg 19.9	Avg 28.8	Avg 30.4
		*Complete delamination of .250" panel occurred with sample #2 and #3, resulting in high peak value.			
SMOKE DENSITY					
Ds		Ds		Ds	
96		77		74	
98		71		79	
71		64		69	
Avg. 88		Avg. 71		Avg. 74	

HRR GAP Testing LP

.250 PANEL WITH DÉCOR	DÉCOR/.250" PANEL/.750" PANEL	DÉCOR/.250" PANEL/.250" GAP/.750" PANEL
L1: S7206 LW/18915/5732/670R/60"/PSLHR - CORAL LATTICE	L1: S7206 LW/18915/5732/670R/60"/PSLHR - CORAL LATTICE	L1: S7206 LW/18915/5732/670R/60"/PSLHR - CORAL LATTICE
L2: PANEL CDM031-40 (.250 THK)	L2: PANEL CDM031-40 (.250 THK)	L2: PANEL CDM031-40 (.250 THK)
	L3: PANEL CDM058-60 (.750 THK)	L3: CDSP5903-06 .250THK (FOR GAP)
		L4: PANEL CDM058-60 (.750 THK)

HEAT RELEASE

Peak	2 min	Peak	2 min	Peak	2 min
24.7	26.3	34.6	33.8	14.1	14.0
41.8	45.2	29.7	31.4	30.3	31.4
37.0	29.6	25.3	27.2	26.9	29.5
24.3	25.4	41.0	33.4	31.0	32.1
28.6	26.4	28.1	23.5	17.4	17.4
39.6	30.6	27.6	28.8	31.7	30.6
39.7	40.4	27.2	26.1	36.9	28.0
28.9	24.1	-	-	33.0	29.6
Avg 33.1	Avg 31.0	Avg 30.5	Avg 29.2	Avg 27.7	Avg 26.6
Run 2 and 7 panel skin popped opened					

SMOKE DENSITY

Ds	Ds	Ds
31	50	65.0
43	41	65.0
40	66	67.0
Avg. 45.5	Avg. 52.3	Avg. 65.7

What's Next?

During the AML Task Group Meeting

- Review data
- Discuss typical applications that require investigation
- Inquire of what other data exists
- Outline test sequences for future study
- Propose standardized guidance.

