



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Technical Center

Atlantic City Int'l Airport  
New Jersey 08405

November 30, 1995

Dear International Aircraft Materials Fire Test Working Group Member:

Enclosed please find a copy of the Minutes/Information Package from the November 13, 1995, meeting held in Atlantic City, New Jersey. This was a one-day meeting held prior to the International Conference on Cabin Safety Research.

It is my belief that this was a successful meeting. One note, however, as stated at previous meetings, Working Group member participation is very important in order to accomplish the goals of the group.

The next meeting will be hosted by Boeing Commercial Airplane Group in Seattle, Washington, on Wednesday and Thursday, March 6-7, 1996. A Preliminary Agenda, additional meeting details, and a Meeting Return Form will be mailed to all Working Group members in January. Please call April Horner at 609-485-4471, by Monday, January 8, 1996, if you have items to be added to the agenda.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Richard G. Hill".

Richard G. Hill  
Program Manager

Enclosure

# INTERNATIONAL AIRCRAFT MATERIAL FIRE TEST WORKING GROUP MEETING

## ATTENDEE LIST

November 13, 1995

<u>First</u>	<u>Last</u>	<u>Company</u>	<u>Country</u>	<u>Phone</u>	<u>Fax</u>
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Pat	Cahill	FAA Technical Center		609-485-6571	609-646-5229
Scott	Campbell	Douglas Aircraft Company		310-593-4975	310-593-5605
Don	Cardis	Schneller, Inc.		216-673-1400	216-673-7327
Bruno	Camere	Aerospatale	France	33-61-18-09-06	33-61-18-04-95
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George	Danker	AKRO Fireguard Products, Inc.		913-888-7172	913-888-7372
James	Davis	Accufleet		713-999-8800	713-999-9066
Darren	Dodd	Faverdale Engineering Group	England	441325381 220	44 1 325 381 218
Skip	Face	HSH Interplan- USA, Inc.		714-444-1549	714-444-1649
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C.L.	Foushee	Albany International Research Company		206-746-8111	206-641-8844
Jeff	Gardlin	FAA Aircraft Certification Division		206-227-2136	206-227-1100 or 1320
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## **International Aircraft Materials Fire Test Working Group Minutes**

**Held at Harrah's Casino-Hotel, Atlantic City, New Jersey**

**November 13, 1995**

### **Task Group Leader Presentations and Updates**

#### **#1 Continued Airworthiness - R. Hill**

Review of testing and study on in-service fire blocking materials. A report has been written on the findings and is in final review at FAA Northwest Mountain Region. Fire resistant foams will be tested next. A report on those findings will be prepared upon completion of the tests and published as a separate report.

#### **#2 Production Quality Assurance - P. Cahill**

Very little to report on due to lack of member interest. This Working Group may be the wrong forum to address QC issues. This Task Group has been dissolved.

#### **#3 Minor Changes to Qualified Materials - R. Johnson**

Reviewed recent OSU test results on honeycomb panels with different color finishes.

#### **Report on Similarity of Fabrics - S. Hasselbrack**

Investigation into similarity of dress cover material. Based on information she received, there is no database at this time. She contacted European Task Group members as well as U.S. seat manufacturers and DER's prior to this meeting. This group will begin to create a database.

#### **#4 Material Systems Renovation & Repair Procedures - T. Marker**

Reviewed information as planned for Technical Note to be written based on the work done by this Task Group. This information will be recommended as an addition to the Aircraft Materials Fire Test Handbook. J. Gardlin: Square foot rule clarification: We are talking about parts that already have to meet the OSU; therefore, the one square foot rule does not apply when considering small repairs.

#### **Summary on The Four Task Groups - R. Hill**

We hope to put together in report-form the testing, documentation, and recommendations for each of Task Group Areas.

#### **Discussion on Standard Panel - R. Hill**

There are two companies currently doing standard panel work: Schneller and Albany International. C. Foushee stated that Albany is still pursuing this. R. Hill: Does industry still want a standard panel? C. Story: Yes, it is important to have a standard panel because materials may fail at one company and pass at another. The standard panel is a necessary check on the equipment. H. Betz: It is definitely necessary to have a standard panel. R. Hill: Are you looking for one panel or several different types of panel? What do you want to see accomplished for next meeting or should we create a Task Group and set a deadline?

R. Felder: The initial purpose of the Task Group changed over the course of the past two years. R. Hill: What exactly do you want a standard panel to do? We see this as an industry problem, and we believe industry should work together on this problem to determine where to go to resolve this problem. If there is enough interest, we will establish a Task Group for a standard panel. Is there any interest in establishing a Task Group on this? Group Consensus: No interest.

#### **Discussion on Transparent and Translucent Materials - R. Hill**

This refers to the use of transparent and translucent materials in scratch shields on windows, optical lenses on lights, and exit sign covers. R. Hill: Are there materials now that can be used that meet the OSU and NBS requirements, are they available and how much do they cost? C. Story: Our materials in this category meet 60-second vertical burn tests but not OSU or NBS requirements. M. O'Donnell: There are some new materials that have not been tested yet? When they are tested, I'll send the results to you. H. Curry: GE does not have anything yet that will meet the 65/65. J. Peterson: Passing the 60-second test is possible with many of these materials.

#### **Separate Task Group Meetings**

#### **Task Group Discussion/Reports/Assignments**

##### **#1 Continued Airworthiness - R. Hill**

New Task Group Established - J. Davis will be chairman "What should manufacturers of materials and seat cushions be supplying to end user to demonstrate continued compliance to the applicable flammability test standard and what should be included in the TSO?"

Jean-Francois Petit's presentation on the service degradation of FR foam compliant with the seat cushion flammability test will be included in this package.

##### **#2 Production Quality Assurance - P. Cahill**

R. Hill: The original request was to determine whether Q/C standards in place are adequate in the area of fire testing.

L. Virr: I don't believe that ISO procedures are going to address this issue. Further explained that the driver for this request was the need to harmonize how composite materials are qualified based on the QC controls done on the individual components.

R. Hill: I don't believe we are going to be able to get anywhere with this request through this Working Group. Perhaps this issue needs to be addressed in another forum. We will disband this Task Group at this point.

##### **#3 Minor Changes to Qualified Materials - R. Johnson**

We discussed the two letters written by this Task Group. These two letters will be integrated and distributed to the Task Group members for review to be completed prior to the next meeting. R. Hill: Stressed the importance of documenting in a report whatever technical data exists to support the contention that color is not a factor in OSU test results. The FAA will evaluate test data submitted and to determine if sufficient data exists to warrant the publication of a report and recommendations on the subject.

#### **#4 Material Systems Renovation & Repair Procedures - T. Marker**

This Task Group refined information presented in morning presentation to be included in Technical Note (report on group's findings). Technical Note should be published by the end of 1995. Are there repair documents available from other aircraft manufacturers? Tim directed this question to Scott Campbell of Douglas. Scott will look into this.

#### **Blanket Test Method Discussion - P. Cahill**

Reviewed work she has done on this project since February 1995. She developed a Test Method for blankets after researching a number of existing test methods from other industries and associations. She tested blankets from a number of airlines and manufacturers made a various types of material and blends. She described the test set-up. Described 'Four Ply Horizontal Test Fixture' she recommended for aircraft blankets. She showed a viewgraph of the test fixture. It is the same test fixture used for the 45-degree flammability test.

#### **Heat Flux Transducer Round Robin - R. Johnson**

Explained difficulties in running this round robin. Transducers were purchased from each of the manufacturers. Based on several meetings with interested parties, it was agreed to standardize on the reflective paint (including its application by on person--R. Johnson) and the use of heated water. R. Johnson showed round robin results from FAA and one other lab. This round robin is not complete at this point. There are still two labs to go. R. Hill: Should the FAA mandate a specific type of transducer? Everyone at meeting using OSU at this WG meeting (about 12 labs) agreed that they would go along with a specific type of transducer and a calibration method. Member comment: ISO is currently working on calibration methods also. R. Hill: they are considerably behind where we are on this problem. M. O'Donnell: Can you send a set of requirements to the manufacturers as to how you want transducer calibrated? R. Johnson: Possibly, after this round robin is completed. C.L. Foushee: Write down how the calorimeter is to be calibrated in a step-by-step format. G. Danker: If we standardize on one transducer how much variability do you think that will eliminate? R. Johnson: We're looking at the heat flux transducer, but the maintenance is important as well. G. Danker: We've come to believe that the transducer is the only problem. C.L. Foushee: We should standardize the calibration procedure and work from there to find where the problems still are. R. Hill: We will complete the round robin if the results indicate calibration variability, FAA will prepare a transducer calibration specification recommendation to be reviewed prior to the next meeting and to be presented at the next meeting.

#### **FAA Technical Center Home Page Address**

The FAA Technical Center has a Home Page Address on the Internet. It is as follows:

<http://www.tc.faa.gov/fire/fire.html>

#### **Discussion on Current Test Methods**

H. Betz: Expressed his concern about the lack of reproducibility of the OSU test exhibited by a current round robin in Germany. R. Hill: We will send out in the form of some type of questionnaire to each lab that has an OSU requesting their ranking of test method parameters with respect to the repeatability and reproducibility of results. We will do this prior to the next meeting and report the answers we've received back to the group.

Oil Burner Tests: R. Hill: It seems that labs try to use selected portions of changes, etc. This is not acceptable. J. Davis: Discussion on testing leathers (Seat Cushion Tests).

#### **Test Method Videos**

NBS Video - Jean-Francois Petit: Made all changes given to him after review of video at last meeting. R. Johnson to provide FAA comments on video to J. Petit. R. Hill: Can JAA review this video and approve prior to its distribution? L. Virr: The video should first be reviewed by DGAC then the DGAC will make a recommendation that the JAA review it. J. Petit: I will have it reviewed by the DGAC.

Bunsen Burner Video - P. Cahill: Has narrative of video for comment if anyone is interested in commenting on it.

#### **New Topics**

P. Cahill: Textile manual put together by Sally Hasselbrack. Pat questioned including this in Handbook. R. Hill: At this point we must talk this over with Boeing management. We may reference it or incorporate it in the Handbook. If we get permission from Boeing management, we would like Sally to chair a Task Group concerning this subject.

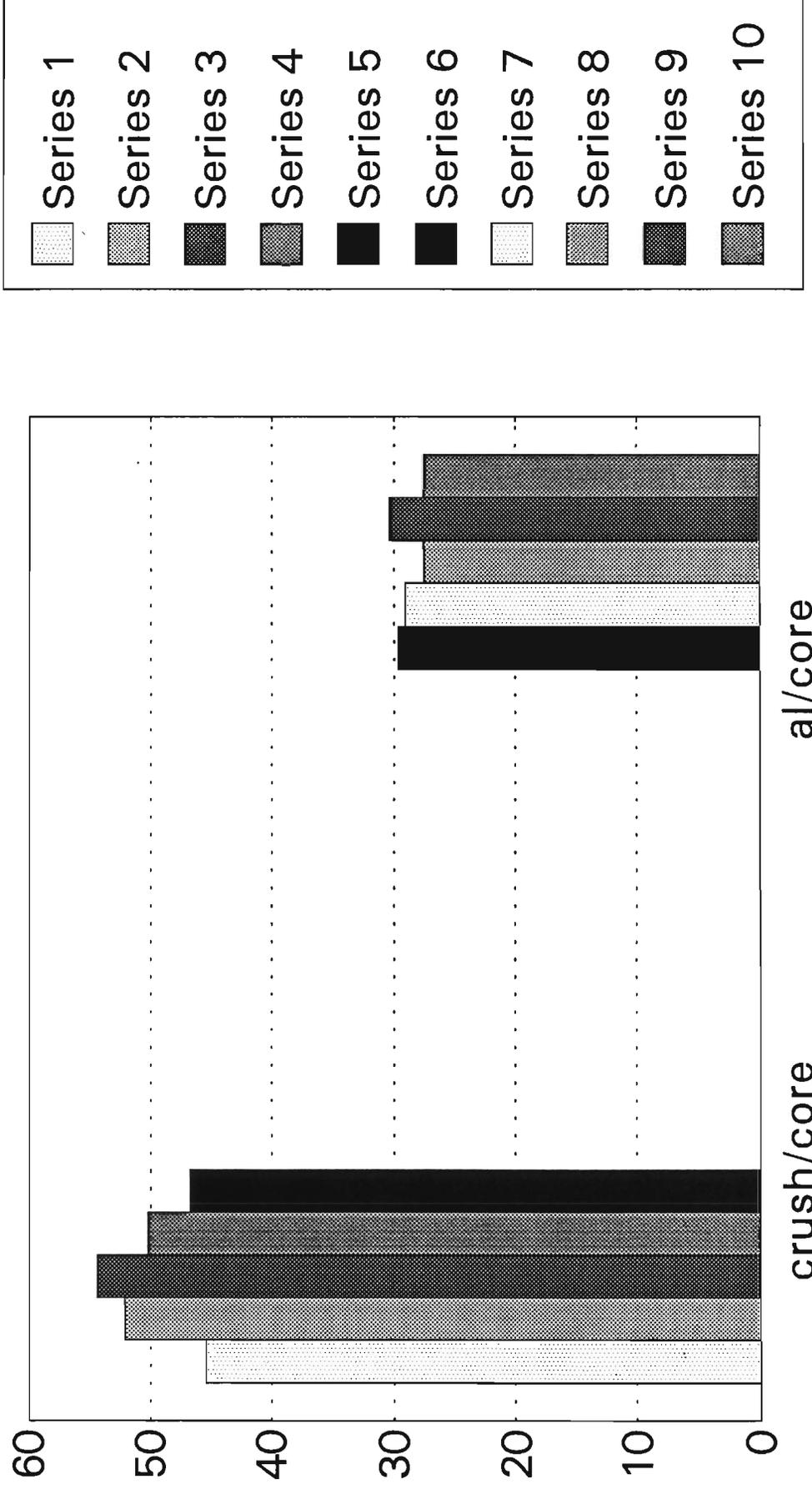
S. Hagihara: When we supply materials to Boeing they have smoke toxicity requirements, will this be a future requirement of the FAA? R. Hill: I don't think it will be. The authorities set minimum safety standards. Heat release is our concern. Those are industry guidelines or requirements and not regulations. The FAA does not at this point in time intend to regulate the toxicity of large surface cabin materials.

Internet - R. Hill: Should we be looking to put more information about this group and its meetings on the Internet?

#### **Final Discussion/Next Meeting**

The next meeting will be held at Boeing in Seattle, Washington, on March 6-7, 1996. Further details and a Meeting Return Form will be mailed separately to all Working Group members in January.

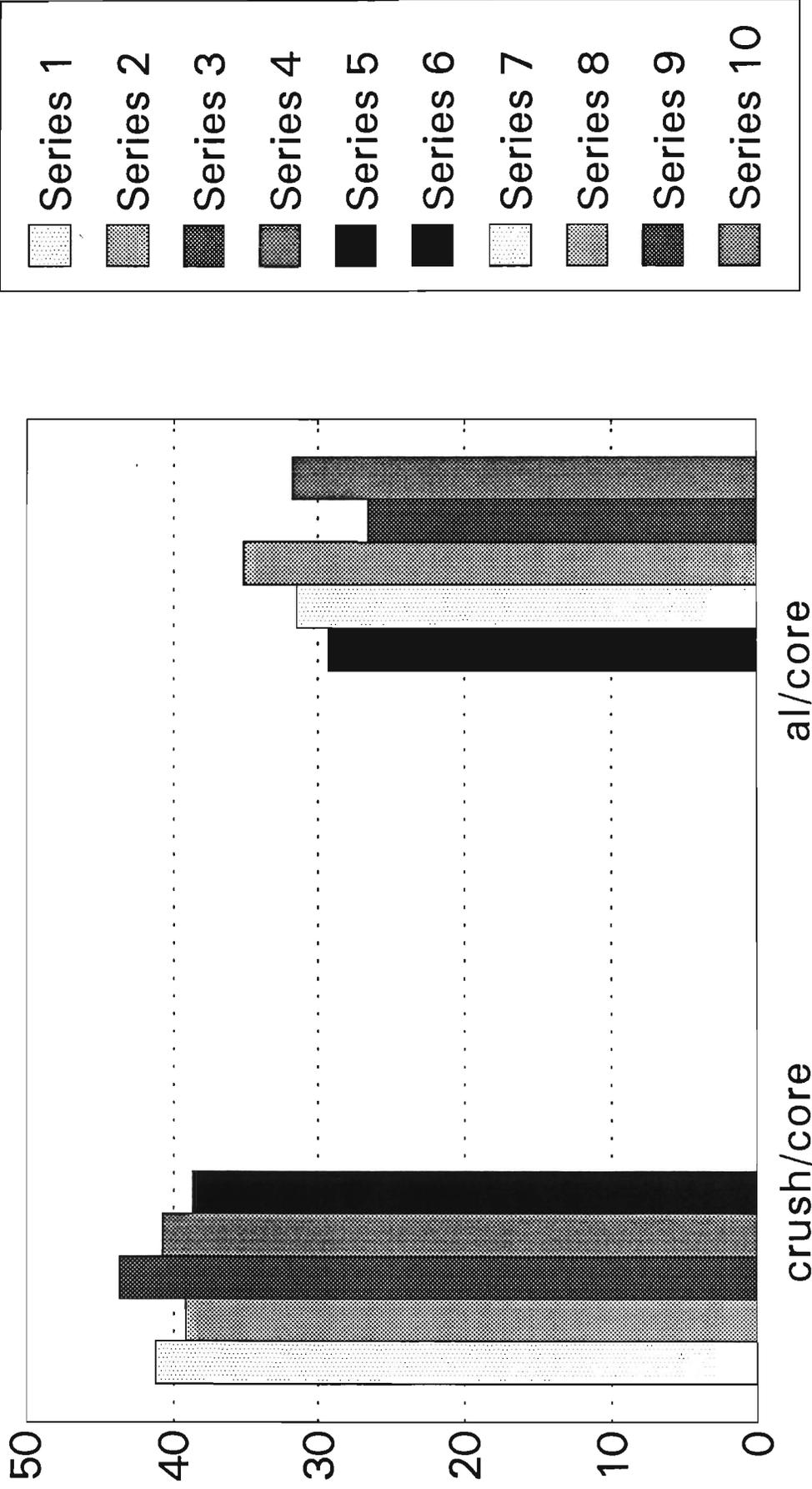
# color/texture test



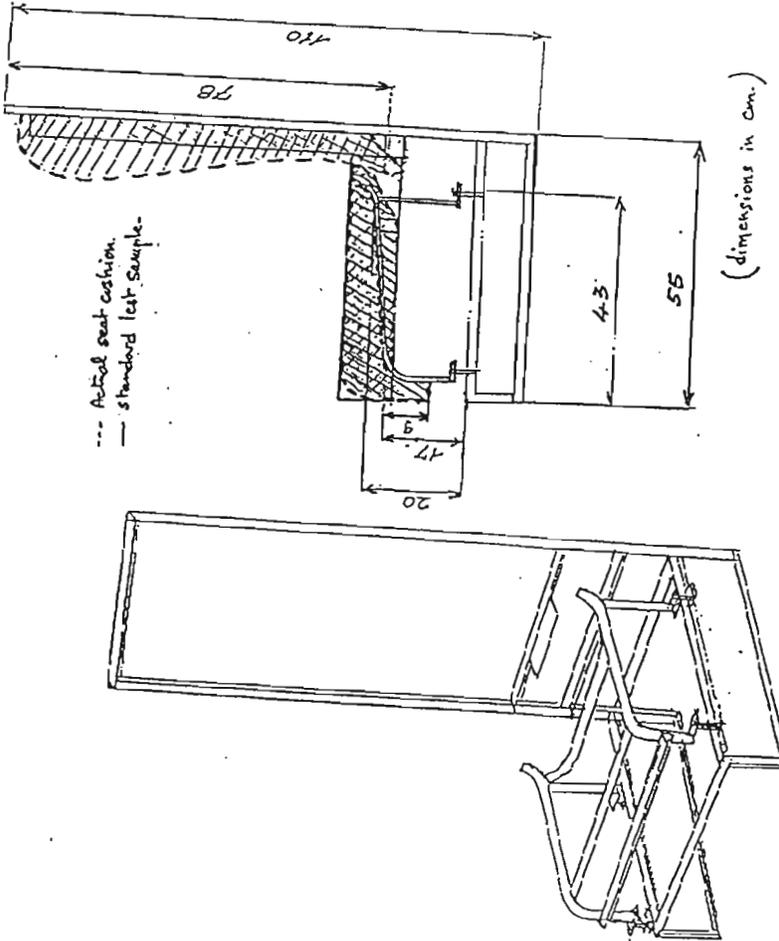
2 min

# color/texture test

% change



peak



MODIFIED TEST RIG FOR "IN SERVICE" SEAT CUSHIONS  
 OIL BURNER FIRE TEST

Continued Compliance - Jean-Francois Petit (CEAT)

Test results obtained on 3x3 sets (back and seat bottom) of the same type of fire-retarded foams. Three sets were selected for each year of production 1990, 1991, and 1992.

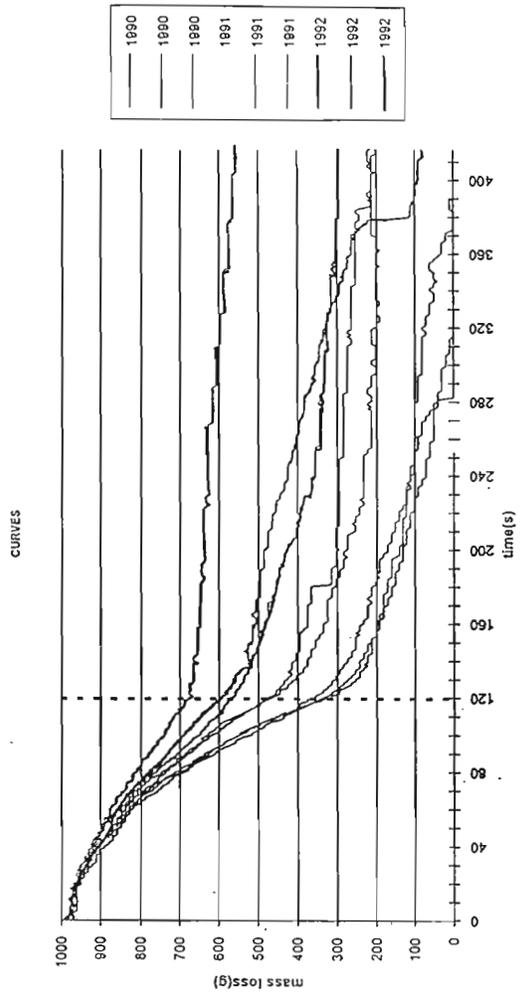
A modified test rig was used to fit exactly the shape of the actual seat bottom cushion.

Experiments will be conducted to clarify the question of the seat cushion shape concerning its influence on the weight loss in the oil burner test.

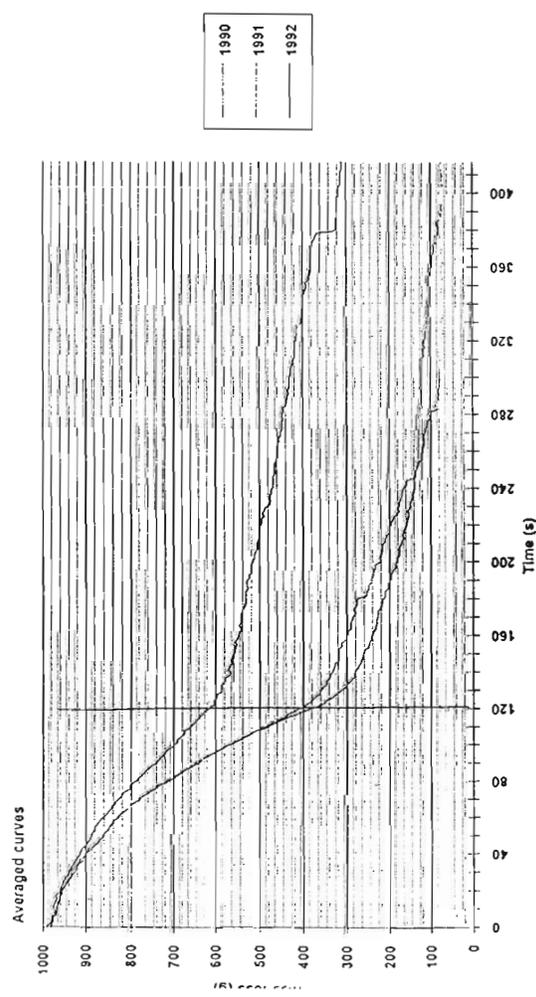
EFFECT OF AGING ON SEAT CUSHION FOAM

TEST NUMBER	% mass loss
1990	
1	32
2	40
3	26
average	33
1991	
1	31
2	41
3	38
average	37
1992	
1	14
2	35
3	25
average	25

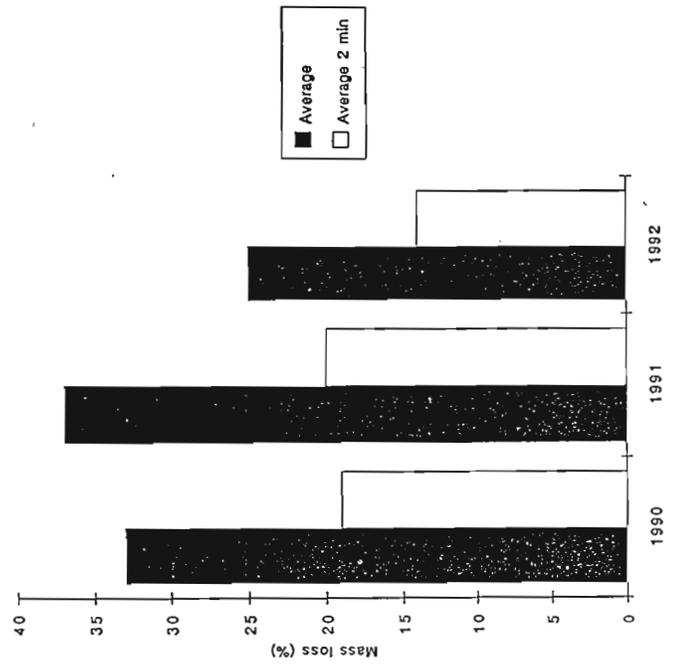
EFFECT OF AGING ON SEAT CUSHION FOAMS



EFFECT OF AGING ON SEAT CUSHION FOAMS



Effect of aging on seat cushion foams



**LIST OF ATTENDEES**  
**INTERNATIONAL AIRCRAFT MATERIALS FIRE TEST**  
**WORKING GROUP MEETING**  
Held at Harrah's Casino-Hotel, Atlantic City, New Jersey  
November 13, 1995

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Bruno CARRIERE	AEROSPATIALE	316 Route de Bayonne Toulouse FRANCE	PHONE: (33) 61-18-09-06 FAX: (3) 61-18-04-45

**LIST OF ATTENDEES**  
**INTERNATIONAL AIRCRAFT MATERIALS FIRE TEST**  
**WORKING GROUP MEETING**  
Held at Harrah's Casino-Hotel, Atlantic City, New Jersey  
November 13, 1995

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STEVE HORN	PHOENIX FIRE INHIBITORS	WEST GLAM UK	PHONE: 0151 356 4900 FAX: 356 1300,
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