

International Aircraft Materials and Fire Test Working Group

Aging/Contamination Task Group

Artificial Aging Results

March 1-2, 2005

Atlantic City

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Material & Process Technology

Aging/Contamination Task Group

Artificial Aging Test Status

Aged PET Film

Aged for 24 months:

- 120F
- 120F/100% Relative Humidity
- 160F
- 160F/100% Relative Humidity
- 200F

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Artificial Aging – Cotton Swab Results

CONTROL
Unaged



- Film Shrinkage - Fast
- Burn Length < 1"

16 Month
at 200F



- Film Shrinkage - Moderate
- Burn Length ~ 3 - 4"
- Discolored Scrim Adhesive

16 Month
160F/100%RH



- Film Shrinkage - Moderate
- Burn Length ~ 3 - 4"

Presented July 2004

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Artificial Aging – Cotton Swab Results

CONTROL
Unaged



•Film Shrinkage – 10”

24 Month
at 120F



•Film Shrinkage – 5.0”

24 Month
120F/100%RH



•Film Shrinkage – 6.5”

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Artificial Aging – Cotton Swab Results

24 Months
at 160F



- Film Shrinkage – 6.5”
- Discolored Scrim Adhesive

24 Month
160F/100%RH



- Film Shrinkage – 8.5”
- Low film strength

24 Months
at 200F



- Film Shrinkage – 5.0”
- Discolored Scrim Adhesive

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SUMMARY & CONCLUSIONS:

- Film has sustained physical degradation
- Film has reached the end of its handling life – handling of in-service blankets would be difficult
- No flame propagation or cotton swab failures (< 8")
- Film shrinkage behavior slightly different
- Degradation in flame propagation is not simply a material issue
- Actual in-service degradation mechanisms much more complex and involves contamination and service environment (many chemical and physical interactions)

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RECOMMENDATIONS:

Due to the complex nature of developing long term aging studies...

- Task group should focus on evaluating the condition of the fleet
- Define flammability safety risk criteria for in-service insulation blankets
- Define test methods for evaluating in-service blankets against the safety risk criteria