HEAT FLUX UPDATES

2014 October Materials Meeting
Atlantic City, NJ

Materials Working Group

Michael Burns, FAA Tech Center

October, 2014

Federal Aviation Administration

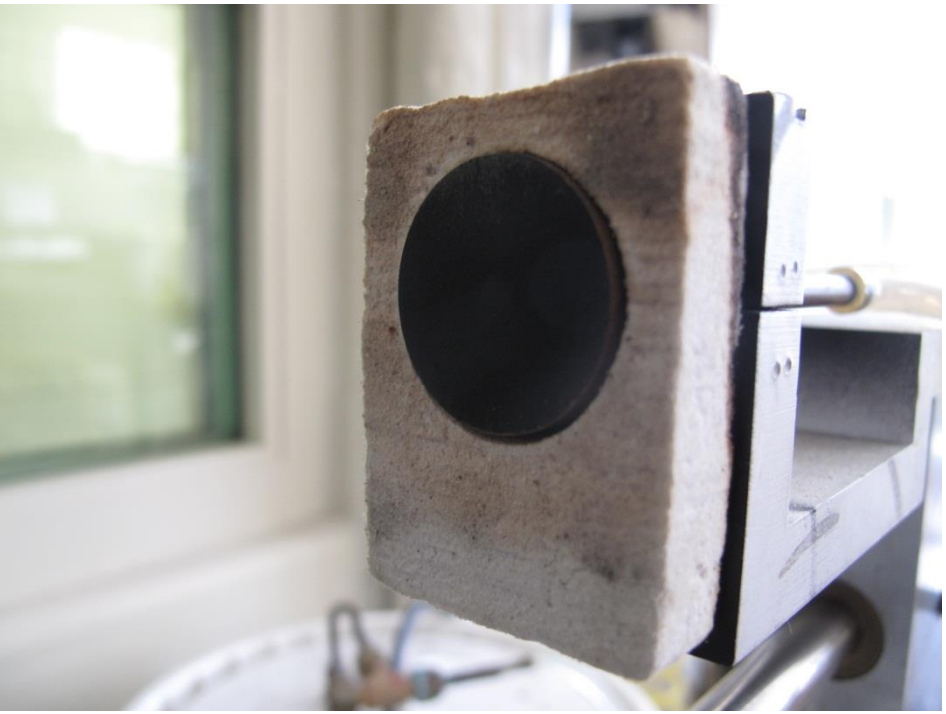
AGENDA

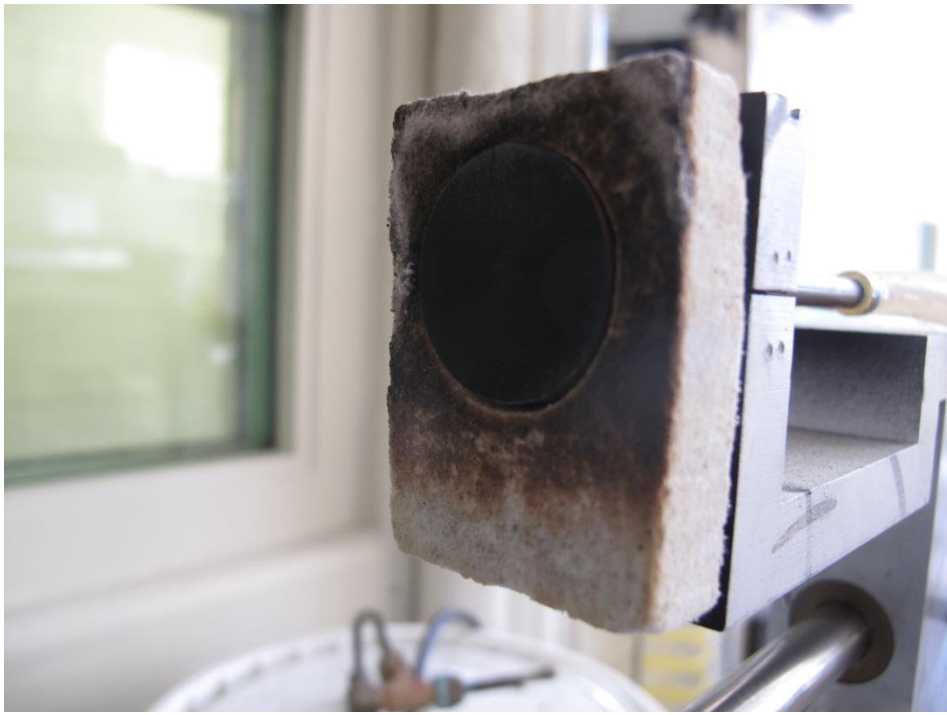
- Use of Millboard
- HFG Ranges for Test Methods
- Next

HFG - Mounting For Calibration

- Currently Chapter HF requires HFG's be mounted through ½" millboard.
- Recent observations (Vatell) suggest off-gassing of binder agent on new Refractory Boards during calibration may be problematic
- New boards may produce a film that could effect the coating and therefore the calibration data.
- The use of the millboard does not impact calibration provided both the Secondary Standard and the Working Gauge are configured the same (similar backdrop reflective qualities)

HFG - Mounting For Calibration





Handbook	Test Method	Requirement		Range
Chapter 5	Heat Release Rate Test for Cabin Materials	3.5 W/cm^2	3.1 Btu/ft^2-sec	0 to 5 W/cm^2
Chapter 6	Smoke Test for Cabin Materials	2.5 W/cm^2	2.2 Btu/ft^2-sec	0 to 5 W/cm^2
Chapter 7	Oil Burner Test for Seat Cushions	11.4 W/cm^2 or greater	10.0 Btu/ft^2-sec	0 - 17 W/cm^2
Chapter 8	Oil Burner Test for Cargo Liners	8.5 W/cm^2 or greater	7.5 Btu/ft^2-sec	0 - 17 W/cm^2
Chapter 9	Radiant Heat Testing of Evacuation Slider, Ramps, and Rafts	1.7 W/cm^2	1.5 Btu/ft^2-sec	0 to 5 W/cm^2
Chapter 11	Powerplant Hose Assemblies Test	10.6 W/cm^2 or greater	9.3 Btu/ft^2-sec	0 - 17 W/cm^2
Chapter 12	Powerplant Fire Penetration Test	10.6 W/cm^2 or greater	9.3 Btu/ft^2-sec	0 - 17 W/cm^2
Chapter 15	Two Gallon per hour Oil Burner Certification Testing for Repaired Cargo Compartment Liners	8.5 W/cm^2 or greater	7.5 Btu/ft^2-sec	0 - 17 W/cm^2
Chapter 19	Smoke test for Insulated Aircraft Wire	2.5 W/cm^2	2.2 Btu/ft^2-sec	0 to 5 W/cm^2
Chapter 23	Test Method To Determine the Flammability and Flame Propagation Characteristics of Thermal/Acoustic Insulation Materials	1.7 W/cm^2	1.5 Btu/ft^2-sec	0 to 5 W/cm^2
Chapter 24	Test Method To Determine the Burnthrough Resistance of Thermal/Acoustic Insulation Materials	2.3 W/cm^2	2.0 Btu/ft^2-sec	0 to 5 W/cm^2

HFG Full Scale Range Criteria

- Effort underway to reduce the use of HFG's where possible (Future requirements)
- If a test method states to use a certain range gauge then that gauge must be used
- For better accuracy, it is not recommended using Hi-range gauges in Lo-range applications
- It is permitted for Hi-range working gauges to be calibrated using Lo-range Secondary Standard gauges

FUTURE WORK

Request Task group input:

- Develop standardized approach to normalize new refractory boards used for calibration

Or

- Standardize HFG background condition (Reflective surface of HFG mount)

QUESTIONS?