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Material Similarity using MCC Method - June 2020 FTWG

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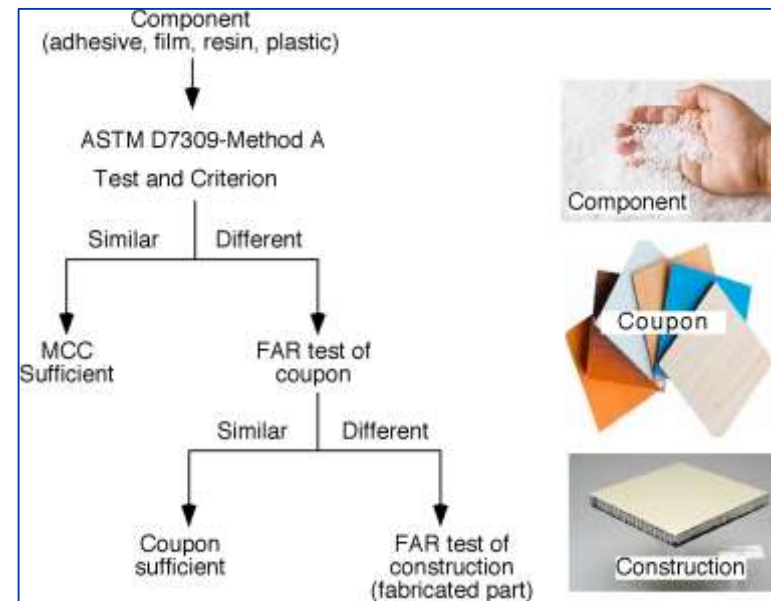
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Material Change Similarity Task Group

Overview - Task Group Goal

- Characterize flammability property parameters of a material using the MCC method
- Comparison of MCC flammability parameters using material similarity process
 - Assess if there is a significant change in the fundamental flammability properties.
 - Material similarity assessment supporting a similarity determination of the material change will eliminate the need to assess the specific FAR flammability requirements for all the different part configurations where this material is used.
- Validate MCC Similarity Process:
 - Develop case studies to validate the process.



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Overview - Task Group Goal (continued)

Path to Advisory Circular (Material Similarity)

- FAA Tech Note on Baseline Correction for MCC methods A and B - ECD 6/26
- FAA Tech Note: Physical Basis for Using Fire Growth Constant (FGC) as a MCC metric – ECD 6/26
- FAA Tech Note on Similarity Criterion and Industry Case Studies - Complete
- Revision of ASTM D7309 ballot to include baseline correction - In progress
- **Pilot Inter-Lab Study (ILS) FTWG participation in ASTM ILS**
- Full scale Inter-Lab Study (ILS) executed with additional data points including FGC - TBD
- Revision of ASTM D7309 specification to include FGC as a MCC metric - TBD
- Draft Advisory Circular for Material Similarity using MCC method – TBD

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ASTM Inter-Lab Pilot Study

Why is ILS Important?

- Need for industry-wide standardization on MCC testing process and data reduction
 - New revisions implemented for ASTM D7309 to account for CO₂ production and for methods A and B
 - Expanding use of MCC method utilizing FGC metric for process control and receiving inspection heat release testing
- ILS pilot study will provide a test run of the D7309 test method to allow for modifications to be made before the final ILS
- ILS results will support future ASTM revision incorporating FGC as a metric (for some applications)
- ILS presents an opportunity for participants to form users' group facilitating open communication in a community of practice

Community of Practice will promote technical knowledge/testing expertise for the MCC method and would also serve to support the ASTM sub committee D20.30

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ILS: Point of Discussion for Break-Out Session

- Some ILS FAQs
 - Number of participating labs must be ≥ 6 (preference for > 10 labs)
 - Registration information should include which ASTM D7309 test method, materials tested (approx. 5-7), material suppliers, participating labs, and number of replicates (approx. 3-5)
 - ILS procedures may include FGC or other procedures not currently in the standard (but later incorporated)
- ILS pilot study planning session to be scheduled
 - Develop pilot study draft for review
 - Define pilot study deliverables
 - Methods and materials (number of replicates, etc)
 - Outline of scheduled activities
 - Address any question from participating labs and make adjustments to ILS procedure as needed
- High level description of ILS steps (last slide)

Boeing-Industry-FAA collaborative effort on standardized MCC testing - Open for discussion

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ILS: Points of Discussion

Register Work Item / ILS with ASTM

Discussion of ILS with ASTM Technical Contact (TC) during conference call

Samples / Sample Funding / Sample Distribution (materials, suppliers, etc)

ILS Participants (lab solicitation)

Lab Instructions for material process and testing

Data Report Form – Data from ILS collected & sent to ASTM

Data Submission - ASTM will track data submitted by the lab participants.

Statistical Summary - ASTM compute the repeatability and reproducibility

Research Report (RR) – Generated by ILS data along with data analysis and the precision and bias statement.

Precision and Bias Statement - Precision and bias statement included on the next ballot.

Approval - ASTM will assign a RR#, and send out copies to the TC and the participating labs.



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