Burnthrough Round Robin

Phase 3 Update

Presented to: IAMFTFM

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Introduction

- **Insulation burnthrough test method evaluation within lab and lab to lab consistency**
  - Sonic burner
    - 2 stator configurations tested so far
    - Testing 3rd configuration for phase 3
  - PAN felt material test samples used
    - Good repeatability for burnthrough time

Purpose of Phase 3

- **Standardize Fuel Nozzle**
  - Monarch fuel nozzles commonly used in burnthrough testing
  - Quality control is lacking
    - Actual vs. rated flow rate
    - Fuel spray pattern
  - Delevan nozzles found to be much more consistent
  - Improved test result repeatability with Delevan over Monarch

- **Conduct comparative fuel nozzle testing at FAA T.C.**
  - COMPLETED

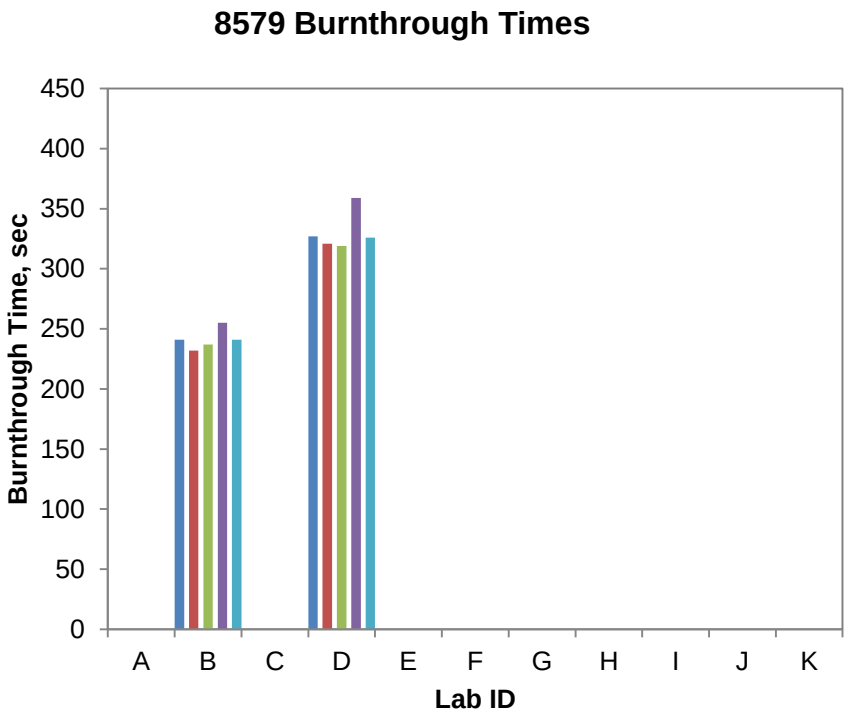
- **Adjust igniterless burner settings to achieve BT times similar to old stator configuration with igniters**
  - COMPLETED

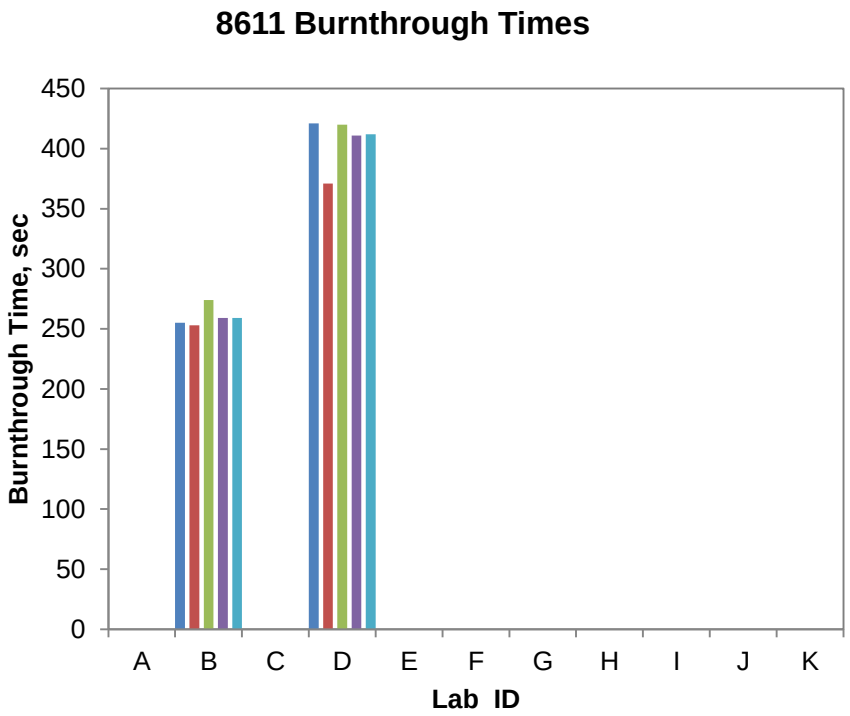
- **Conduct "Phase 3" of study using Delevan nozzles and new burner settings**
  - Currently in progress

Phase 3 of Study

- **Phase 3 differs from Phase 2 in the following manner:**
  - Delevan 6.0 gal/hr, 80-degree, solid spray fuel nozzles will be used by all labs
- **Phase 3 is the same as Phase 2 in all other manners:**
  - Stator position and air pressure
  - Only PAN materials are tested
    - 5 PAN-8579 light felt material
    - 5 PAN-8611 heavy felt material
- **Delevan nozzles are available to all burnthrough test labs**
  - Task group meeting
- **Phase 3 status**
  - Delevan fuel nozzles, PAN test samples, and detailed instructions are provided
  - 9 labs currently involved
  - 6 labs have received samples
    - Shipping issues for 3 labs
  - 2 labs have returned data

Phase 3: Test Results





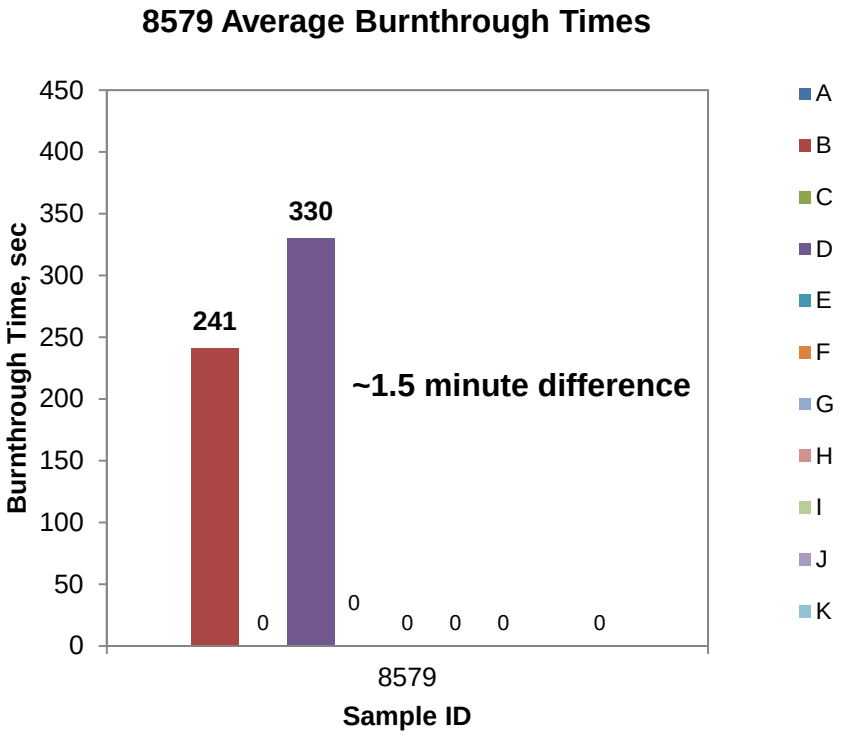
% Standard Deviation within Labs

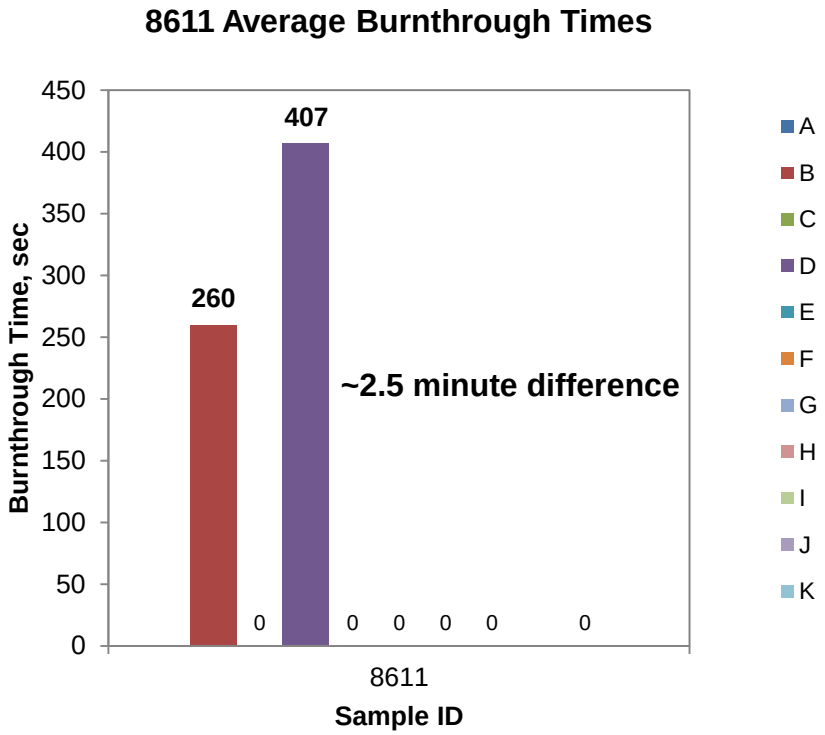
4.3%

% Standard Deviation within Labs

4.1%

Phase 3: Test Results





% Standard Deviation Overall

17.0%

% Standard Deviation Overall

23.7%

Federal Aviation Administration

Phase 3: FAATC Test Results

- **Good repeatability within each lab**
  - ~4.3% Std Dev for PAN-8579 felt material
  - ~4.1% Std Dev for PAN-8611 felt material
- **Reproducibility among labs should improve**
  - ~17.0% Std Dev for PAN-8579 felt material
  - ~23.7% Std Dev for PAN-8611 felt material
- **Investigate reason for burnthrough time difference**
  - Burner configuration?
- **Need more data for comparison to Phase 1**
  - Is the new configuration equivalent to the old stator setup?
  - Has repeatability and reproducibility improved?

Questions?

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