Fire Suppression in Class E Cargo Compartments

Presented to: International Aircraft Systems Fire Protection Working Group, Atlantic City, NJ

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Date: November 16-17, 2011
Objective

• Test and Evaluate a Variety of Fire Suppression Options.

• Identify Potential Cost Effective Methods of Controlling Fires.
Options of Suppression Agents

Container Based Agents
- Water
- Novec 1230
- Nitrogen Enriched Air
- Oxygen Starvation
- Aerosol-type Agent
- Fire-Fighting Foam

Zone Based Systems
- Water Mist
Container Based Solutions

- NEA alone was not effective in suppressing the test fires regardless of flow rate and oxygen concentration.
- NEA and water used in combination effectively suppressed the test fires.
- Novec 1230 was able to suppress the fire for a limited period of time.
Oxygen Starvation
Oxygen Starvation

![Graph showing temperature and oxygen concentration over time for various sensors. The graph includes lines for In Box, Above Box, Box Vent, T/C #3, T/C #4, T/C #5, T/C #6, T/C #7, T/C #8, T/C #9, TC #10, and O2, with temperature on the y-axis and time on the x-axis.]
Container Based Solution

Test article is being constructed to study zone water mist systems.
Future Work

• Conduct tests with fire fighting foam.
• Conduct tests with aerosol agent.
• Test fire suppression agents on battery fires.
• Conduct tests with a zone water mist system.