

Lithium Battery Fire Scenario for Cargo Compartment Halon Replacement Minimum Performance Standards (MPS)



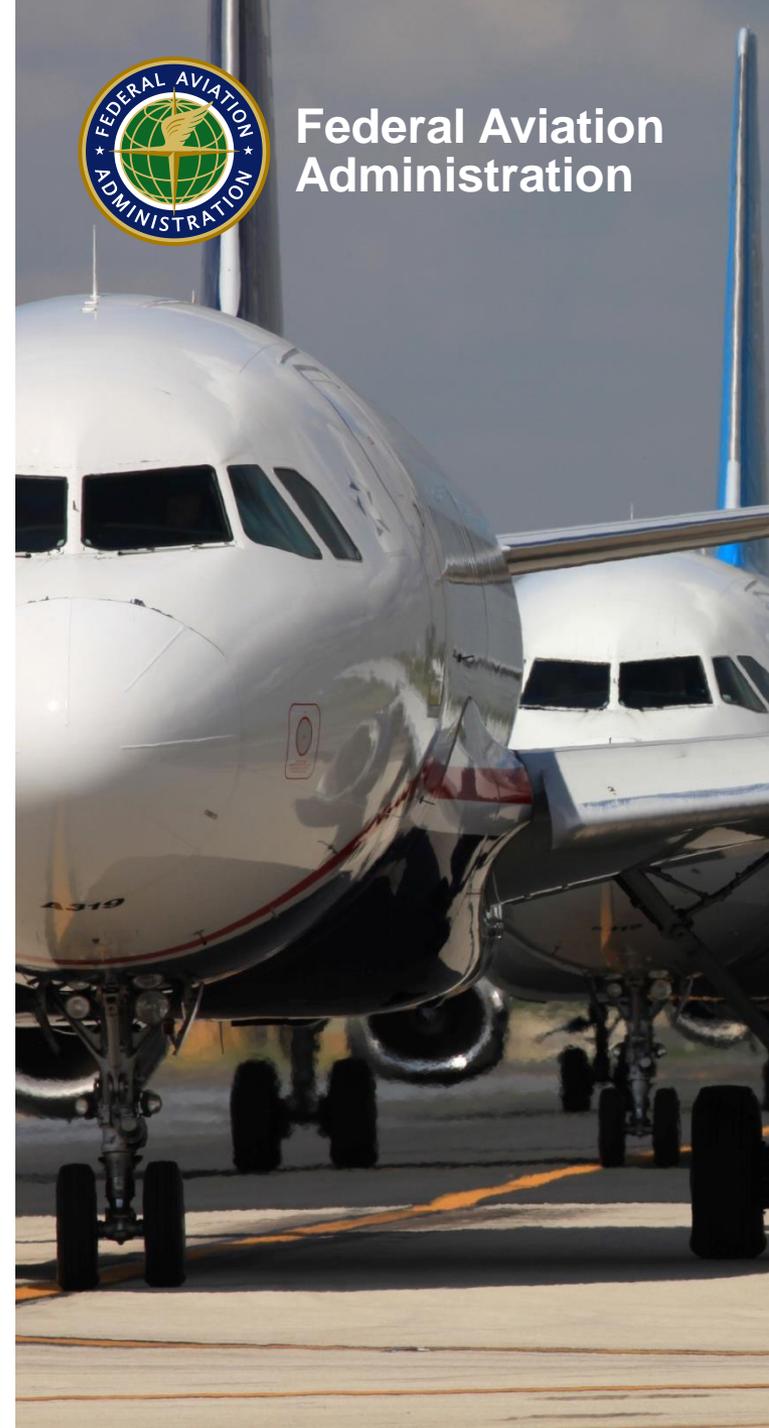
Presented to: International Aircraft Systems Fire
Protection Working Group

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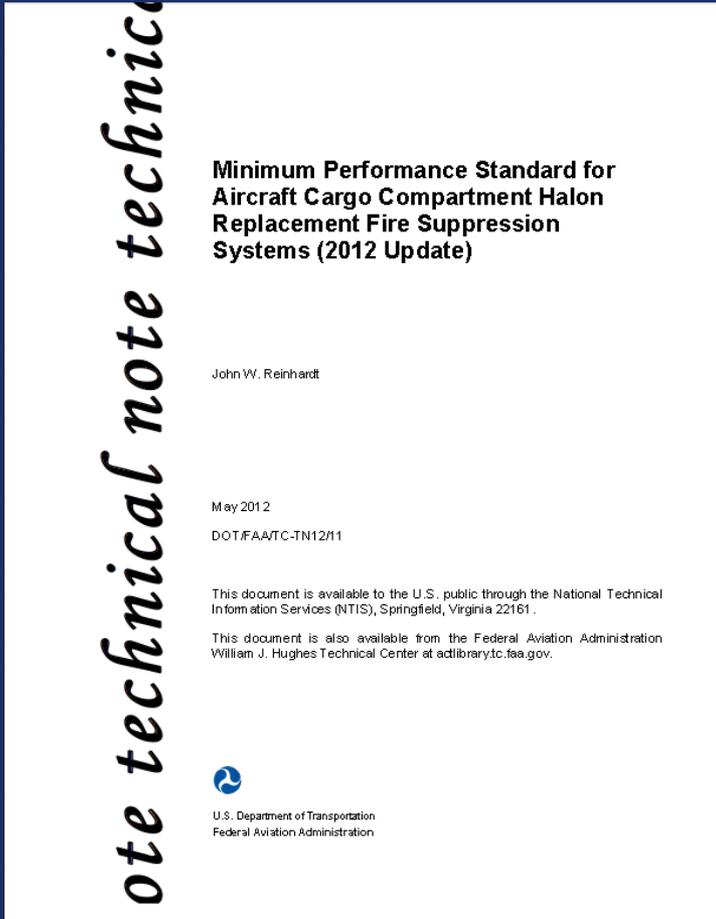
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Federal Aviation
Administration



Purpose: Conduct testing to determine if a lithium-ion battery fire scenario is a necessary addition to the current Halon replacement cargo compartment MPS.(DOT/FAA/TC-TN12/11)

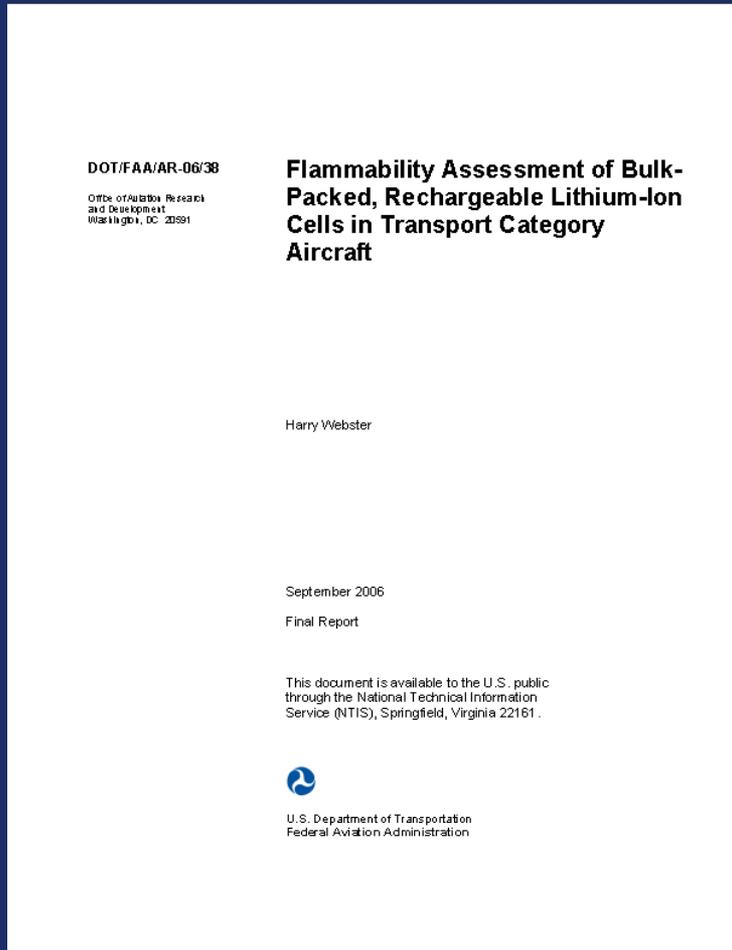


Four Current Fire Scenarios

- Bulk Load
- Containerized Load
- Surface Burning Flammable Fluid
- Aerosol Can

Effectiveness of Halon 1301 on lithium-ion battery fire.

Previous test results.



Tests have previously been conducted with Halon 1301 and Lithium-ion 18650 cells. The tests used 8 cells over an alcohol pan fire under the following conditions:

- Cells at either 50% or 100% SOC
- Halon concentration of either 3% or 5%
- Halon discharged at either the first or second venting event.

64 ft³ Test Box



Conclusion: Halon 1301 is effective in suppressing the electrolyte fire, extinguishing the fire, and preventing any additional fire from subsequent venting. Cells will continue to vent due to the air temperature, but will not ignite in the presence of Halon 1301.

Status: Testing for this project is on hold until results of full scale lithium-ion battery fire tests in Class C cargo compartment data becomes available.

These planned tests will provide valuable data on the baseline performance of Halon 1301 on a lithium-ion battery fire. The test results should help determine the criteria that replacement agents should be evaluated against to ensure their performance maintains a similar level of safety as current Halon systems.

