



RESEARCH FOUNDATION

RESEARCH FOR THE NFPA MISSION

Evaluation of Multipurpose (ABC) Dry Chemical (Ammonium Phosphate) for Use On or Near Aircraft

Project Summary

Updated: 23-June-2022

Background: Multipurpose (ABC) dry chemical (ammonium phosphate) from fire extinguishers used in aircrafts are dispersed either by direct impingement or natural dispersion of the particulate. It is not completely understood, if these are harmful to the aircraft machinery and components with particular regard to corrosion of typical aircraft materials and to presence of dry chemical in engines or other moving parts. The results from this project will provide information to the NFPA 407 Standard for aircraft fuel servicing and other aviation related standards NFPA 409, 410, 415, 418 Technical Committees.

Project Goal and Tasks: The goal of this project is to research the existing information and conduct a gap analysis.

Task 1: Literature review. Through a literature review, the project will examine:

- The materials and mechanisms of aircraft that could be exposed to multipurpose (ABC) dry chemical (ammonium phosphate) in the event of a release on or near aircraft (e.g., hangars, fueling ramp or tarmac.)
- Review past research that exists on the corrosion of typical aircraft materials due to the dry chemicals.
- Identify risks of failure of exposed mechanisms due to the presence of multipurpose dry chemical in the exposed machinery (i.e., increased friction, tackiness, interruption of fuel combustion, etc.).

Task 2: Comparative Analysis.

- Compare the information from Task 1 with the effects caused by BC dry chemical (sodium bicarbonate or potassium bicarbonate), which is the permitted alternative.
- If the research suggests that the dry chemical is harmful to aircraft, suggest future work, such as a dispersion model, for verifying a safe distance between the point of release and nearby aircraft.

Task 3: Final Report.

- Compile the information from Task 1 & 2 as a final report and review it with the project technical panel for feedback. Submit a final report after incorporating the panel comments.

Project Schedule: The project is anticipated to be completed in six months from project initiation. The final report is anticipated to be published by January 2023.