

Compressed Air Foam Systems (CAFS) and Flourine Free Foam In Future Aviation Safety and Aircraft Rescue & Fire Fighting Efficiency

by Kim T. Olsen

The UK Civil Aviation Authority and other specialists from different parts of the aviation industry set up a large scale fire test in May 2012 to compare compressed air foam systems (CAFS) with normal aspirated foam using different foam products. These tests took place at the Centre National de Prévention et de Protection (CNPP) research facilities in Vernon, France, with participation of UK CAA regulators, manufacturers from the aviation and ARFF industries, and airport fire fighters.



Compressed Air Foam Systems (CAFS) have been used to fight fires for many years. Traditionally CAFS have been used to fight Class A/Structural fires and has never really been used for Class B/Fuel fires. CAFS is really a simple system in which air is injected into the water/foam solution before leaving the piping leading to the turret or hose line. Traditionally airport Crash Tenders have operated using aspirating turrets and nozzles.

Environmental issues with fluorine and the organohalogens (fluorosurfactants) in aqueous film-form-

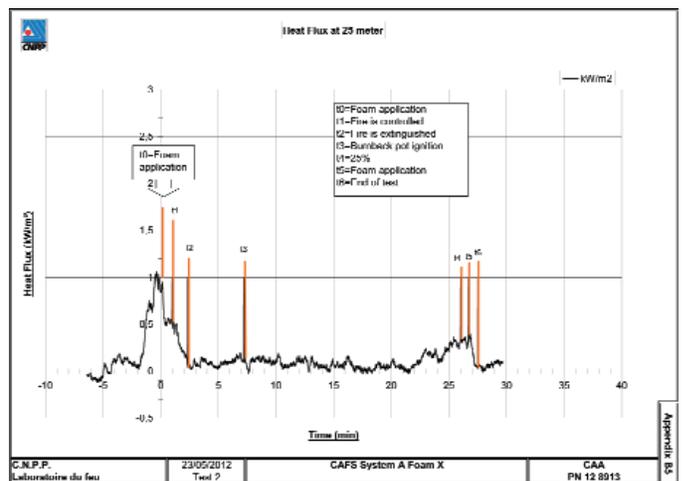


ing foams (AFFFs) have resulted in a process of these foams being replaced by new fluorine-free foams. The new fluorine-free foams are also ICAO level B approved and it was with great interest to see how these performed on a large scale fire.

Results from this testing clearly shows that CAFS has a tremendous capability for knocking down the fire compared to the normal aspirated nozzle. The CNPP results showed that CAFS is some 40% more efficient! Moreover, test results also showed that the new fluorine-free foam was just as efficient as AFFF!

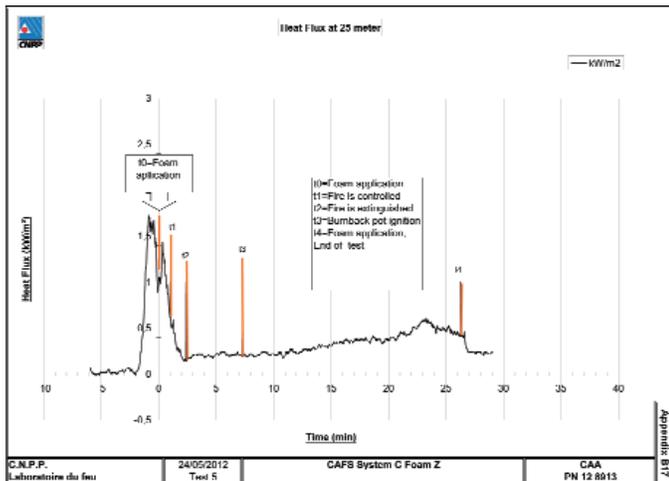


Typical results for these CAFS fire tests are shown in the two attached diagrams in which results are compared for an ICAO level B compliant AFFF (Foam X) and an ICAO Level B compliant fluorine-free foam (Foam Z). Clearly there are no significant differences in efficiency.



For the last five to six years Copenhagen Airport Fire Service has worked on operational and tactical improvements. The whole fleet of Crash Tenders have been upgraded with Rosenbauer CA-5 Panthers. One Panther is

provided with FLASH CAFS (air bottles instead of a compressor - this works extremely well with large flow rates) on the main turret and two others with high reach extended turrets (HRET) and the Hydro-Chem dual system. For environmental reasons AFFF foam was replaced with fluorine-free Solberg RF re-healing foam.



Seen from my position as an Assistant Fire Chief responsible for the Fire Service's operational capability, these results "fit like a hand in a glove" and prove that we at Copenhagen Airport in Denmark have taken the right choices at the right time. I have no doubt at all that CAFS and fluorine-free foam will improve both aviation safety and the environment impact of fire service operations at airports. Just as important is the safety of the firefighters whom we send straight into the danger zone in a worst

case scenario. Greater efficiency and faster control of the situation will certainly also give firefighters more confidence in coping with the situation. A new Rosenbauer Panther with CAFS on all low pressure outlets is well on its way and expected to be put into service at CPH in November 2012.

The UK Civil Aviation Authority has recently put forward a proposal, which was accepted, to the ICAO Rescue and Fire Fighting Working Group at their last meeting in Montreal (Canada) for the use of CAFS on airport fire vehicles. If things go as planned, this recommendation will be implemented in the ICAO Airport Service Manual in November 2013.

Great news for the future of aviation safety!

About the Author: Before taking on the job as a firefighter at Copenhagen Airport, Kim Olsen served 9 years in the Security/Airport Police. A promotion and a new job at Roskilde Airport meant getting involved with ARFF. After returning to the Copenhagen Airports Fire & Rescue Dept. in 1989 he has worked his way through the ranks.

Kim Olsen is a member of both IAFFA and the ARFFWG, holding a position as a Manager for section 11 in the ARFFWG and functions as a Liaison Officer between the two organizations. Kim Olsen is the Chief Instructor at the Copenhagen Airport ARFF School. He is an Instructor in ARFF on all Danish Incident Command courses at DEMA the Danish Emergency Services College. ■

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