Halon Replacement for Airplane Portable Fire Extinguishers - Progress Report

International Aircraft Systems Fire Protection Working Group Conference

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Objective

Provide a progress report on development of BTP (2-bromo-3, 3, 3-trifluoropropene), a promising new environmentally safe Halon replacement handheld fire extinguishing agent

Agenda

- Steps to Commercialization
- BTP Current Progress
- Future
- Questions

Steps to Commercialization

- ✓ Cup burner testing - 2002
- ✓ Initial toxicity tests (Ames, cardiotox…) - 2002
- ✓ 2D ODP, GWP and atmospheric lifetime - 2004
- ✓ Prototype extinguisher, near drop-in replacement for Boeing 1211 extinguisher - 2009
- ✓ UL 711 5B pan fire tests - 2009
- ✓ UL 711 cold temperature pan fire test - 2009
- ✓ FAA MPS AR-01/37 hidden fire tests - 2009
- ✓ 3D model analysis of ODP and GWP - 2010
- ✓ FAA MPS AR-01/37 seat fire toxicity tests - 2011
- ✓ ASTM flammability tests (per NFPA 704) - 2011
- ✓ Airplane material compatibility tests - 2011
- ✓ Synthesis of BTP for toxicology testing - 2011
- ✓ Publication of 3D ODP scientific paper - 2011
- ✓ Additional BTP physical properties testing - 2011
- ❑ Toxicology testing
- ❑ PBPK testing and modeling
- ❑ Provide PBPK data to FAA for inclusion in AC 20-42D and FAA/AR-08/3
- ❑ US EPA TSCA inventory listing
- ❑ US EPA SNAP approval
- ❑ EU REACH approval
- ❑ 3.25” diameter bottle
- ❑ UL 2129 fire extinguisher bottle tests and UL listing
- ❑ ASTM standard for BTP

BTP Current Progress

- ✓ **University of Illinois at Urbana Champaign (UIUC) paper on 3D atmospheric modeling was published in the December 2011 issue of the Journal of Geophysical Research – Atmospheres**
  - ✈ **Abstract: http://www.agu.org/pubs/crossref/2011/2011JD016518.shtml**
  - ✈ **ODP is .0028 with 7-day lifetime**
  - ✈ **"The short lifetime, low ODP, and low GWP indicate that BTP should have minimal effects on ozone and climate"**

- ✓ **Additional physical properties testing has been completed**
  - ✈ **Surface tension, water solubility, etc…all physical properties tests required for commercialization.**

- ✓ **Toxicology testing**
  - ✈ **ECD 4Q12: Skin irritation, eye irritation, biodegradation, 90 day sub-chronic inhalation, reproductive/fetal toxicity, etc...all toxicology tests initially identified by the EPA.**

On track for SNAP/REACH approval in 2013*

****Dependent upon test results and EPA requirements/schedule***

Future

Further updates will be provided at the next IASFPWG meeting in November 2012

Questions?

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