

Submitted By: Robert Wright, Boeing
Robert.S.Wright@boeing.com

What is Commercial Aviation's Halon Footprint?

Abstract

A study was conducted to determine the amount of Halon 1301 predicted to be used by the large commercial airplane (>100 seats) fleet for engine/APU and cargo compartment fire protection over the next two decades. Modeling generated estimates of the size of the potential market for Halon 1301 replacement candidates, and also predicted the amount of Halon 1301 released by the future fleet.

The model developed for the study accounted for variations in fleet mix, overall size of each market segment, and utilization rates of different airplanes. Final results indicate a near doubling of the amount of Halon 1301 actually installed on airplanes between 2012 and 2032, with a very small amount being released, either through system discharge (commanded or un-commanded) or losses during bottle maintenance. The mass of Halon 1301 released through various means is two orders of magnitude less than the total installed amount.

The results also indicate a much lower rate of actual Halon 1301 released into the atmosphere than those estimated by the United Nations Halon Technical Options Committee (UNHTOC report of 2010). This lower rate (approximately 15-20% of the UNHTOC estimates) is likely due to more accurate information on airplane utilization rates, commanded/un-commanded discharge trends and individual airplane configuration being available to industry-based researchers.