Title: Factors Affecting the Limiting Oxygen Concentration Required for Ignition in an Aircraft Fuel Tank

By:

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Abstract:

A review of the test data from the published literature identifies the effects of various factors on the Limiting Oxygen Concentrations (LOC) required for ignition in the ullage of an aircraft fuel tank. These factors include ullage temperature, source strength, slosh and vibration, dissolved oxygen, variation in fuel composition and concentration gradients in the ullage. While the effect of each of these factors on the LOC is small (typically a drop of 0.5% to 1.0%), their combined effects is unknown and can be significant. The existing test data will be reviewed and an approach to quantifying the combined effects will be presented. This paper is relevant to the assessment of the adequacy of the 12% LOC limit in inerting the Center Wing Tank of an aircraft.