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**EFFECT OF FSII ON MICROBIAL CONTAMINATION:
DIEGME AND TRIEGME**

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From 2003 to the present, the fuels laboratory at Wright Patterson AFB has investigated microbial contaminants in Air Force fuel systems. Some of the most common microbes identified were used to represent typical field consortia in the current study.

Recently, there has been mounting pressure to reduce aviation fuel costs in the Air Force. Diethylene glycol monomethyl ether (DiEGME), the current Fuel System Icing Inhibitor (FSII) additive, is added to JP-8 at a maximum volume percentage of 0.15 and is an obvious candidate for cost reduction. In addition to its function as an anti-icing additive, it also is known to have some biocidal/biostatic activity. In this study, microbial consortia isolated from the field and those obtained from American Type Culture Collection (ATCC) lab cultures were tested at low levels of DiEGME, 0-30% in the aqueous phase of a liquid aviation fuel/simulated water bottom setup, to determine a minimum level at which DiEGME was still effective against microbial contamination. Both the field and lab consortia were shown to be significantly affected at levels above 10%. In addition to the goal of reducing FSII additive levels, another current goal is to replace DiEGME with Triethylene glycol monomethyl ether (TriEGME) to eliminate various issues ascribed to the use of DiEGME, such as tank topcoat peeling. Therefore, this study also included field and lab consortia tests at 0-30% TriEGME in the aqueous phase. Field and lab consortia were shown to be significantly affected at TriEGME levels of 15% and above in the aqueous phase.