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BIOCONTAMINATION DIVERSITY IN JP-8 AND JET-A

Marlin Vangsness¹, Susan Mueller¹, Loryn Bowen¹, Lisa Brown¹, Lori Balster,¹ Capt. Jerrod McComb,² and Ellen Strobel²

¹The University of Dayton Research Institute, 300 College Park, Dayton, OH 45469 USA
US Air Force, AFRL/RZTG, Wright-Patterson AFB, OH 45433 USA

Microbial contamination results in millions of dollars each year spent on corrosion remediation, premature filter replacement and physical tank cleaning. Additionally, equipment as well as aircraft down time may result in lost income while contaminated fuel tanks are cleaned and fuel stores are treated and filtered. Previous studies have focused on culturing microbes from polluted water, soil, or from fuel tank water bottoms to determine the identity of problem microbes and how to best control infestations. Unfortunately, this method is biased toward species that grow well in the laboratory. To eliminate the culture bias DNA was recovered directly from fuel samples to provide a nearly unbiased estimate of microbial diversity within a single sample. DNA sequences were grouped into phyla and genera to calculate diversity indices across geographic areas, aircraft type, and fuel type. Data indicates the diversity of a microbial population varies between fuel types while geographic location and aircraft type have little to no effect on the microbial populations.