

**Title:** Development of Bio-Based Fuels for Aircraft Turbine Engines, Final Report 1998

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**Publication Date:** 1998

**Summary:** The Renewable Aviation Fuels Development Center (RAFDC) at Baylor University has concluded a program sponsored by the Texas Alternative Fuels Council (T AFC), to test blends of renewable fuels such as biodiesel, ETBE or ethanol, with the currently used turbine engine fuel, Jet A.

The purpose of the program was to attempt to reduce the emissions of the current widely used Jet A fuel. Blend strengths up to about 30% biodiesel by volume were tested. Several blends were considered and tested for bench properties and for performance in a ground test engine stand. Two blends were then selected and tested in a flight-testing program.

The Baylor University aircraft used for air pollution investigations served also as the test flight platform for the alternative fuel blends. One of the two engines ran on the alternative fuel, while the other ran on the conventional turbine fuel. A carefully designed flight program was carried out. Data was collected, analyzed and comparisons between the two fuels were made.

The results indicate that biodiesel blends in turbine fuels may be particularly effective as a mean of reducing the CO<sub>2</sub> burden resulting from jet aircraft operations as well as reducing NO<sub>x</sub> emissions.

**Market Segment:** General

**Accessibility:** Public

**Files Available:** From Baylor's website:  
<http://www.baylor.edu/bias/index.php?id=5723>