



Virent Bio-Jet Provides More Than 50% Reduction in Particulate Matter Emissions

Rolls-Royce Testing Demonstrates Virent Synthesized Aromatic Kerosene (SAK) Bio-Jet Fuel Blend Provides Health and Environmental Benefits While Maintaining Engine Performance

Bio-jet emissions testing by Rolls-Royce and supported by the Federal Aviation Administration (FAA) under the Continuous Lower Energy, Emissions, and Noise (CLEEN) program, confirmed that jet fuels containing Virent's BioForm[®] Synthesized Aromatic Kerosene (SAK) fuel blend produced a greater than 50% reduction in particulate matter emissions compared to conventional jet fuel. The emissions data and other successfully completed test results have been summarized in a report released by Rolls-Royce, British Airways, and the FAA.

The testing verified the potential for the SAK fuel to reduce the adverse environmental impact and health effects resulting from jet fuel combustion. The International Civil Aviation Organization (ICAO), a specialized agency within the United Nations, is leading international policy making efforts to control particulate matter and greenhouse gas emissions. Virent's SAK fuel can reduce both particulate matter and greenhouse gas emissions without compromising engine performance, and when fully commercialized will support the growth of the aviation industry while addressing anticipated ICAO regulations.

Virent was chosen to participate in the initial Rolls-Royce Laboratory Test program, and was then selected by Rolls-Royce to proceed to the more advanced Rig Testing portion of the program. Virent's SAK fuel blend met all test requirements and the report concluded that the fuel "...offers the potential to be [a] drop-in fuel and hence achieve approval for use for the aviation industry".

BioForm SAK fuel is a unique jet fuel-blending component produced by Virent's BioForming[®] process, a catalytic route that converts plant-derived feedstocks to hydrocarbons. Virent's SAK fuel contains aromatics that are cleaner-burning than those found in conventional, refined crude oil based jet fuel. The Rolls-Royce testing of the SAK fuel blends demonstrated this capability with a 50% to 80% reduction in particulate matter emissions depending on engine operating conditions.

Virent produced the renewable SAK fuel in its pilot demonstration plant in Madison, Wisconsin. "We believe Virent's bio-derived SAK fuel has the potential to provide the aviation industry with a cost effective solution to reduce jet engine particulate matter and greenhouse gas emissions without impacting engine performance. I want to express my appreciation for FAA's role in sponsoring the testing, and to the Rolls-Royce team for their support and expertise in delivering these important results," said Lee Edwards, Virent CEO.

Virent will progress additional testing of the SAK fuel in collaboration with external parties as part of the ASTM certification process.

About Virent

Virent is replacing crude oil by creating the chemicals and fuels the world demands using a wide range of naturally-occurring, renewable resources. Its patented technology features catalytic chemistry to convert plant-based materials into a full range of products identical to those made from petroleum, including gasoline, diesel, jet fuel, and chemicals for plastics and fibers. The products are drop-in replacements that enable full utilization of existing logistics infrastructure without blending limitations. The development of Virent's BioForming® technology platform is supported through strategic partners including Cargill, Coca-Cola, Honda and Shell. The company has received several grants from the U.S. Departments of Commerce, Energy and Agriculture and has been recognized with many honors, including the World Economic Forum Technology Pioneer award and the EPA's Presidential Green Chemistry Challenge Award.

Virent Contact

Shelly Norris
shelly_norris@virent.com
608-210-3365
3571 Anderson St.
Madison, WI 53704