



Analysis of ReadiJet® Alternative Fuel Released: 100% Drop-in Biofuel tested in historic jet flight reveals 50% reduction in emissions and reduced fuel consumption

FOR IMMEDIATE RELEASE

January 7, 2013 — Ottawa: Results from the world's first flight powered by 100 percent biofuel that met petroleum fuel specifications without blending were released today by the National Research Council of Canada (NRC). Test results show that ReadiJet®, produced by ARA and Chevron Lummus Global from Agrisoma's *Resonance* feedstock and in partnership with the U.S. Air Force Research Laboratory (AFRL), reduced emissions and provided better fuel efficiency than petroleum aviation fuel.

Information collected in-flight on October 29, 2012 and analyzed by a team of National Research Council experts revealed a 50 percent reduction in aerosol emissions when using ReadiJet® biofuel compared to conventional fuel. Additional tests from the static engine show a significant reduction in particles (up to 25 percent) and in black carbon emissions (up to 49 percent) compared to conventional fuel. These tests also show comparable engine performance, but an improvement of 1.5 percent in specific fuel consumption during the steady state operations. The jet's engines required no modification as the biofuel tested in-flight meets the specification test property limits of petroleum-based fuels.

"We are pleased with these positive results. The flight went smoothly and the data collected enables us to better understand the impact of biofuel on the environment," said John R. McDougall, President of the National Research Council of Canada. "We will continue to work with our partners Applied Research Associates, Chevron Lummus Global, and Agrisoma Biosciences, Inc. to bring this effective energy solution to market. The final product will be a sustainable option for reducing aviation emissions."

"Partnering with NRC Canada's outstanding team to fly the first ever 100% biofuels flight with a fuel that meets petroleum specifications test property limits without blending was historic. Their exceptional data collection capabilities and detailed analysis shows that our ReadiJet, which produces much lower lifecycle green house gas emissions than petroleum, will also contribute to a cleaner environment with significantly lower aerosol, particle, and black carbon emissions," stated Chuck Red, ARA's Biofuel program manager.

NRC flew the first civil jet powered by 100 percent unblended biofuel on October 29, 2012, achieving a milestone for the aviation industry. The Falcon 20 flew with both engines on ARA/CLG's ReadiJet biofuel at 30,000 feet, similar to regular commercial aircraft altitude. A second aircraft, the T-33, tailed the Falcon in flight and collected emissions data.

[More information about this biofuel initiative.](#)

[More information on the world's first civil flight powered by 100 percent biofuel.](#)

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About Chevron Lummus Global

CLG licenses refining hydroprocessing technologies and catalyst systems worldwide, and is a 50-50 joint venture between Chevron Products Company, a wholly owned subsidiary of Chevron Corporation, and Lummus Technology, a CB&I business sector. CLG's research and development staff is continuously seeking advancements in catalyst and technology that will improve operating economics. CLG is the leading Process Technology Licensor for Alternate Sources of Fuels including: Oil Sands Bitumen, Shale Oil, Biofuels, Extra Heavy Oils. For more information about Chevron Lummus Global please visit:

http://www.chevron.com/products/sitelets/refiningtechnology/about_che_tech.aspx

About ARA

ARA's alternative fuel effort began in 2006 in response to a U.S. military requirement for technologies that can convert renewable oils to jet fuel. To answer this challenge, ARA engineers conceived an idea of using high temperature water to create biocrude. A U.S. patent on the CH technology was granted to ARA in 2010. ARA's REDIJet and REDI Diesel fuels meet all petroleum specifications without blending. For more information about their fuel initiative, visit: www.ara.com/fuels. For more information about ARA's diverse and innovative capabilities, please visit www.ara.com.

About Agrisoma

Agrisoma Biosciences is a Canadian based agricultural biotechnology company that has commercialized a sustainable feedstock crop solution for the biofuels industry. Resonance™ Energy Feedstock is a biofuels solution: a non-food oilseed that is sustainable, with value chain economics that support its scaling to support the biofuels industry – a “drop-in” crop solution that takes advantage of the power of agriculture to achieve scale and quality. Resonance™ Energy Feedstock provides an optimized oil for advanced biofuel manufacturing technologies with significant benefits in fuel manufacturing efficiencies and economics.

www.agrisoma.com

About NRC

The National Research Council (NRC) is the Government of Canada's premier organization for research and development. Every year NRC scientists, engineers and business experts work closely with Canadian industry to take research impacts from the lab to the marketplace. This delivers innovation faster, enhances people's lives and addresses some of the world's most pressing problems. NRC has the people, expertise, services, licensing opportunities, national facilities and global networks to help Canadian businesses bring new technologies to market.

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