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## **Exceptional Jet Fuel Produced From High-Quality Cellulosic Sugars**

Cellulosic Jet Fuel Passes Rigorous Specification Tests

**Madison, Wisconsin, and Danville, Virginia – March 26, 2012** – [Virent](#) and [Viridia](#), formerly HCL CleanTech, announce the successful conversion of cellulosic pine tree sugars to drop-in hydrocarbon fuels within the BIRD Energy project, a joint program funded by the U.S. Department of Energy, the Israeli Ministry of National Infrastructure and the BIRD Foundation. The project, which commenced in January 2011, successfully demonstrated that Viridia's deconstruction process generated high-quality sugars from cellulosic biomass, which were converted to fuel via Virent's BioForming® process.

Virent used Viridia's biomass-derived sugars to produce gasoline and jet fuel, the latter being sent to the U.S Air Force Research Laboratory (AFRL) for analysis where it passed rigorous testing. Tim Edwards of the Fuels Branch of the AFRL said, "This fuel passed the most stringent specification tests we could throw at it (such as thermal stability) under some conditions where conventional jet fuels would fail. This fuel is definitely worth further evaluation."

"While Virent's BioForming® process has previously generated fuels and chemicals from sugars in cellulosic biomass," said Virent Co-Founder and Chief Technology Officer Dr. Randy Cortright, "The high-quality sugars generated from pine trees using Viridia's process leveraged Virent's conversion process, establishing a viable route to drop-in hydrocarbons from biomass."

"Passing the AFRL's arduous test requirements for jet fuel further substantiates the superior value proposition of the advanced carbohydrates that Viridia is introducing," said Philippe

Lavielle, Viridia CEO. “As demonstrated by the BIRD Energy project results, Viridia’s CASE™ (Cold Acid Solvent Extraction) process can deliver the high-purity, cost-effective cellulosic sugars needed as the primary raw material for jet fuels and other applications. We are pleased to work with Virent to prove that the value of cellulosic biomass can be unlocked.”

Viridia’s CASE process encompasses a sequence of proprietary extraction and separation operations. Originally developed around the Bergius process (concentrated hydrochloric acid hydrolysis of biomass), the CASE process achieves the highest yields in the industry, and produces high purity fractions of sugars and lignin. Its low temperature, low pressure hydrolysis coupled with its closed loops of acid recovery and solvent extraction establish it as one of the most economical and environmentally sustainable processes.

Virent’s BioForming platform utilizes a novel combination of catalytic processes to convert water-soluble oxygenated hydrocarbons derived from biomass to non-oxygenated hydrocarbons that can be used as drop-in compounds in gasoline, jet fuel and diesel fuel. Virent’s BioForming platform catalysts and reactor systems are similar to those found in today’s petroleum oil refineries and petrochemical complexes.

### **About Virent, Inc.**

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. The products are drop-in replacements that enable full utilization of existing logistics infrastructure without blending limitations or compromising on product quality. The development of Virent’s BioForming® technology platform is supported through strategic partners including Cargill, Coca-Cola, Honda and Shell, as well as 120 employees based in Madison, Wisconsin. Please learn more at [www.Virent.com](http://www.Virent.com).

### **About Viridia**

Viridia is the developer of the CASE process that converts lignocellulose into industrial sugars and lignin from wood chips and other non-food, cellulosic biomass to enable the growth of renewable chemicals and second-generation biofuels. Viridia envisions that producing high quality, competitively priced sugars and lignin from sustainable sources of biomass will help reduce our dependence on petroleum-derived products, reduce overall carbon emissions, and develop new manufacturing industries in rural areas. Founded in 2007, Viridia is a privately held

company backed by top-tier venture capital firms, including Tamar Ventures, Khosla Ventures, Burrill & Company and Triple Point Capital. Please learn more at [www.Virdia.com](http://www.Virdia.com).

This project received funding from BIRD Energy; for more information, please visit [www.Birdf.com](http://www.Birdf.com).

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