

Fuel For Thought

Summer 2011



Did you know?

Virent has hired 15 employees since your last newsletter.

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The Migration to Cellulosic Sugars

“Feedstock flexibility” is one of the differentiators of our technology, but it is also one of the differentiators of our business model. With feedstock being the number one cost driver in biofuels production, Virent prides itself in being able to offer customers and partners tremendous flexibility in choosing the feedstock(s) that meet their financial, geographic and sustainability requirements.

Unlike companies that focus on producing one or a small range of



Lee Edwards, CEO

molecules, from one or a small range of feedstocks, Virent offers a wide variety of options.

This technology flexibility gives us great commercial flexibility, as we are having conversations with companies throughout the supply chain on both the fuels and chemicals sides of our business. Many industries are committed to offering their customers 100% renewable, recyclable products, and Virent is in an enviable position to provide feedstock options to help realize their goals.

Gasoline From Corn Stover & Pine Residuals

Virent recently announced it successfully produced biogasoline from corn stover and pine harvest forest residuals, as a recipient of the U.S. Department of Energy’s (DOE) February 2010 grant to the [National Advanced Biofuels Consortium](#) (NABC). Virent’s is one of six different process strategies represented in the DOE’s grant program with the NABC.

Virent fed hydrolysate samples into its Aqueous Phase Reforming (APR) catalyst reactor system, removing most of the oxygen from the biomass sugar mixtures, producing monoxygenates such as alcohols, aldehydes and ketones, plus the reforming products of hydrogen and carbon dioxide. The liquids were then fed into Virent’s Catalytic Oxygenates to Aromatics (COTA™) process to produce a high octane fuel, which the company has trademarked BioFormate™ biogasoline.

“Producing gasoline from cellulosics is an important milestone for our company, and for the biofuels industry overall,” said **Dr. Randy Cortright**, Virent’s founder and chief technology officer. “We anticipate further development in our production of drop-in fuels and chemicals from biomass, giving our nation long-awaited access to a wider range of feedstock choices.”



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Fuel For Thought

Welcome Kieran Furlong!

The Business Development Group is pleased to announce the arrival of its new Commercial Manager of Chemicals, Kieran Furlong. Kieran has extensive experience in the chemical industry, in addition to his time spent in the world of clean technology start-ups.

He spent 10 years in the catalyst businesses of ICI, plc. and Johnson Matthey, plc. where he gained experience in fields as diverse as oleochemicals, natural gas processing, biofuels and polymers (particularly PET and polyurethanes). He has worked in various countries around the world including Argentina, the UK, Germany and the USA, and in a variety of roles - engineering, manufacturing, product management, sales and commercial development.

Immediately prior to Virent, Kieran worked at Solazyme. Kieran received his BS in Chemical Engineering from University College Dublin, Ireland and his Masters of Business Administration from the Graduate School of Business at Stanford University.



Did you know?

Virent employees participate in an annual United Way giving campaign.

Virent's PX Completes Plant-Based Bottle

Virent recently [announced](#) it had successfully made Paraxylene (PX) from 100% renewable plant sugars. The PX molecule, when combined with existing PET technology, allows manufacturers to offer customers 100% natural, renewable, plant-based PET and packaging.

This announcement is the culmination of Virent's mixed-xylenes development which started in 2010. Virent's Paraxylene, which has been trademarked the BioFormPX™ chemical, can be used in bottling, packaging and in a wide variety of fibers and materials. The chemical is made through Virent's patented, catalytic process which converts plant-based sugars into PX molecules identical to those made from petroleum.

All of Virent's chemicals are 'drop in' replacements that enable full utilization of existing processing and logistics infrastructure without blending limitations. Virent's PX can be blended at any ratio the customer desires, and made from a wide variety of feedstocks, including sugar cane, corn, and woody



Virent on the Road

Virent management is presenting our technology and products at a variety of conferences this summer. We receive weekly invitations from all over the world to participate on panels, present papers and speak on a wide variety of topics.

9/8	2011 Bioscience Vision Summit
9/14-16	International Biorefining & Tradeshow
10/1	Euro Polyester Industry Conference
10/1	CAAFI General Meeting
10/12-14	Biodiesel & Renewable Fuels Conference
10/24-26	Infocast Biobased Global Partnering Summit



Welcome David Hitchcock!



We are pleased to welcome our new VP of Government Relations, David Hitchcock. David joins Virent from Next Autoworks, a start-up automaker backed by Kleiner, Perkins, Caufield, and Byers and by Google Ventures. At Next Autoworks, David led the company's plant site selection team as well as governmental affairs efforts at the Federal, state, and local levels. Additionally, he supervised operational planning for the company's first manufacturing facility and was also responsible for public relations and human resource management functions.

In 2008, David retired at the rank of Lieutenant Colonel after 20 years of service in the United States Marine Corps. An F/A-18 Hornet pilot, his career spanned a variety of disciplines, including operations, aircraft maintenance, training, strategic planning, and logistics, and culminated with squadron command. Assignments included a three-year tour in Japan, service at the Pentagon and combat service in both Iraq and Afghanistan. David holds a BS from the US Naval Academy and a MA from the Naval War College.

Virent Wins Largest Federal Award to Date

On June 10th Virent [announced](#) it had received its largest single federal award to date, up to \$13.4M subject to final contract negotiations with the DOE, to employ its patented catalytic process in the conversion of corn stover to jet fuel. The award is part of \$36M the DOE is using to fund projects aimed at improving the economics and efficiency of biological and chemical processes that convert non-food biomass feedstocks into replacements for petroleum-based feedstocks, products and fuels.

Virent applied for the award in February, feeling its expertise in biomass-to-fuels technologies meshed well with the DOE's project objectives. In this project, Virent's catalytic conversion technology will be integrated with the biomass deconstruction technologies of the National Renewable Energy Laboratory, the state-of-the-art purification technologies of the Argonne National Laboratories and advanced computational modeling of Northwestern University.

The Eagle Has Taken Off - Again!

A stroll through Virent's south building would reveal a number of Virent employees wearing blue Flame Resistant Coveralls ("FRCs"), not to mention a flurry of activity in the Virent control room. "Eagle," the name given to Virent's gasoline demonstration plant, has been operating over the past couple of months to meet Shell's 2011 and 2012 race seasons' gasoline requirements for the Scuderia Ferrari Formula 1 team. "This will be the third F1 race season for which we've provided fuel, and operating Eagle is always exciting," explained Virent's Vice President of Plant Operations, Mary Tilton. "We have run several campaigns to make gasoline for Shell for both fleet testing and Formula One racing, and during those runs, it's all about attention to detail to achieve smooth operation."

When operating, Eagle is in continuous production mode 24 hours-per-day. The plant is fully staffed in the field and inside the control room which houses the distributed control system. From behind the glass of the control room, Virent employees monitor conditions and ensure the complex system is running smoothly. Field operators take samples and make checks on equipment to ensure everything is in sound mechanical order. Because Virent's catalytic technology results in continuous production versus batch, finished fuel is flowing constantly from the plant, filling the receiver vessels with final product which will be sent to Shell. Shell then blends the Virent fuel into gasoline used by the race team. Eagle started operations in November 2009, and was designed to produce up to 10,000 gallons of biogasoline per year.



Did you know?

Virent employees vote to name federal award projects. The DOE jet fuel project is called

Blackbird.



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Change is in the air!

The Virent facility is expanding again! The company plans to annex **additional office space** on the north end of the building effective September 1st.

Virent.com is undergoing an extensive facelift. A team of six Virent employees have been working with The Hiebing Group, an interactive agency here in Madison, on the **new website**. "We have two primary goals with the new site," explains Marketing Manager Kelly Morgan. "We want to differentiate Virent from other biofuels companies in terms of our technology, feedstock flexibility, the products we make and the collaborations we have. Second, the website needs to explain how those differentiators translate into success for customers on both the chemicals and fuels sides of our business." The new site is being developed in a staging environment, and Virent plans to go live with the website this fall, so watch for the announcement!

The Human Resources team will attend recruiting fairs throughout the Midwest using a **new exhibit booth**. The booth is a pop-up style, can be assembled by one person in just a few minutes, and features removable and interchangeable graphic panels to convey a wide variety of information depending on the audience.

Virent is engaging the public relations firm **Burson Marsteller** to assist in the positioning and messaging initiatives related to Virent's fuel and chemical products. Virent will be supported by the firm's New York and Washington, DC offices.



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