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Navigating Roadblocks on the Path to Advanced Biofuels Deployment

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VIRENT AT A GLANCE

The global leader in catalytic biorefinery research, development, and commercialization

Technology

Flexible Infrastructure Platform

Converting plant-based feedstocks to fuels and chemicals

Partners & Investors

20+ Development Pilot Plants
5,000 gal/yr Demo Plant
10,000 gal/yr Demo Plant
76 issued patents
160+ pending applications

Cargill, Shell, Coca-Cola Company, Honda

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The BioForming® Concept

Biobased feedstocks to direct replacement products

Biomass

Sugar Cane

Corn

APR/HDO

Modified ZSM-5

Condensation + Hydrotreating

Reformate

Aromatics Gasoline

Distillate

Jet Fuel Diesel

Drop-in

Drop-in

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DIRECT REPLACEMENT, DROP-IN FUELS

Virent Distillates Meet ASTM Specs

Premium Biogasoline – 120,000 Btu/gal

Virent Jet Fuel

Virent Fuel in Scuderia Ferrari Race Fuel
Current status

Delivered over 100 gallons of jet fuel to Air Force Research Lab, Wright-Patterson AFB
ICIS Chemical Business
ANALYSIS OF CHEMICAL MARKETS

GREEN CHEMICALS
BIO-PX HOLDS THE KEY
100% renewable PET bottles will need this component
Well funded, coordinated program making large strides on biomass.
DISCUSSION ON OVERCOMING ROADBLOCKS

Roadblocks Come in Many Stripes

Technology

- The technical challenges are real.
- Collaboration partners and product options are key to de-risk commercialization.

Economics

- Economic conditions and droughts are beyond our control, but very real.
- Big balance sheets are preferred, even then ‘comparative ROI’ is key.
- High oil prices actually incent more US oil production.
- The biofuels winners will offer the best combination of products and economics.
ROADBLOCKS (CONTINUED)

Market forces drive incremental improvements well; categorical improvements in the U.S. biofuels industry require reliable policy.

Regulatory
- RFS is supportive, yet improvement needed.
- Obligated parties exercise lowest cost RFS compliance possible.

Tax
- For example, expand MLP and REIT options.
- Better tax credit options to facilitate investment financing.
VIRENT SUMMARY

Leading technology with catalytic conversion to drop in fuels and aromatic chemicals
  • IP, Infrastructure, Partners, Size of Market, Financing, Economics

Economically attractive process
  • Higher Yields and Feedstock Flexibility Relative to Fermentation
  • Competitive Pathway to Px
  • Market Supports Green Pull

Continued investment in technology will allow Virent to de-risk scale up
  • $28m in Government Grant Awards over 5+ yrs (DOE, FAA, USDA, Navy)
  • Shell Collaboration and Equity
  • Cargill, Honda and other VC Equity with Longer Term Views
  • Expect New Chemical Partner to Support Coca-Cola Collaboration
Thank you.

Virent is replacing Crude Oil.

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