



AMERICA'S NEXT GENERATION OF BIOFUELS

Overview

Cobalt Biofuels is a next generation biofuels company enabling the transition to domestically-produced, renewable fuels. Cobalt Biofuels has a portfolio of technologies that will accelerate the competitive commercialization of biobutanol, the next generation biofuel. These proprietary technologies can also be applied to lower the cost and increase the efficiency of producing current biofuels, including ethanol.

About Cobalt

Based in Mountain View, California Cobalt Biofuels is comprised of cutting-edge researchers from top US universities and seasoned management from leading bio-engineering firms. The company is backed by leading Bay Area life science and technology investors.



Benefits of Cobalt Biobutanol

Energy density similar to gasoline

Can be transported via gasoline pipelines

Has a calculated carbon footprint one-third lower than gasoline

Uses locally grown feedstock as biomass sources

Can be used in concentrations over 15% in unmodified gasoline engines

Biobutanol for America

Cobalt Biofuels' technology for producing biobutanol and other biofuels will dramatically influence energy security, rural economies, and carbon output issues:



Energy Security

Cobalt's production strategy helps stabilize America's renewable fuel portfolio through the introduction of biobutanol and butanol/ethanol blends. Biobutanol's energy density and compatibility with gasoline pipeline infrastructure make it a competitive fuel when compared to gasoline.



Economic Stimulus

Cobalt technology allows States with low ethanol production capacity to participate in the biofuel industry. Cobalt innovations allow a range of regional crops to be used in the production of biobutanol and other next generation biofuels. Cobalt technology has the potential to expand the economic benefits of biofuel to additional rural and agricultural communities of America.



Reduced Carbon Footprint

Cobalt-produced biobutanol has a calculated carbon footprint approximately one-third lower than gasoline. Additionally, Cobalt's technology can further reduce the carbon footprint of ethanol through increased energy and production efficiencies.

Why Biobutanol?

Biobutanol is a next generation biofuel that can be produced by processing a broad range of non-food plant feedstocks and other feedstocks, including corn and sorghum.

- Biobutanol can be transported via gasoline pipeline and distribution infrastructure
- Biobutanol has an energy density similar to gasoline
- Biobutanol can be developed as a stand-alone fuel

Leadership Team

- Rick Wilson, Ph.D.
Chief Executive Officer
- Steven Shevick
Chief Financial Officer
- David Walther, Ph.D.
Director, Engineering
- Hendrik Meerman, Ph.D.
Director, Bioprocessing
- Stacy Burns-Guydish, Ph.D.
Director, Microbiology

The Cobalt Advantage

Cobalt provides the technology for a new generation of butanol and ethanol. Cobalt technology will change the biofuel industry by:

- Allowing production of biofuels from local feedstocks based on regional agricultural priorities, including plants that are not subject to food price fluctuations
- Increasing the rate of biofuel production through continuous fermentation
- Improving yield by optimally pairing fermentation organisms with a diversity of feedstocks
- Reducing the energy and water requirements for biofuel production through advanced fluid separations technology

The application of Cobalt technology will decrease the cost of biofuels to consumers and reduce the 'energy equivalent' cost relative to gasoline.

Cobalt Technology

The production cost of alcohol fuel is strongly dependent on three key process parameters: yield, rate and titer. Cobalt's technical focus in strain development and bioprocess technology directly addresses each of these three crucial parameters to reduce the cost of producing biofuels:

Biomass Conversion Efficiency

The cost of feedstock dominates the overall cost of producing biofuel, and the efficiency of biomass conversion (yield) is greatly dependent on the microorganism utilized in the biofuel production process. Cobalt is developing and patenting a high-throughput process to identify the optimal microbe for *any* selected plant substrate. This technology will allow Cobalt to efficiently match organisms to each regionally appropriate feedstock.

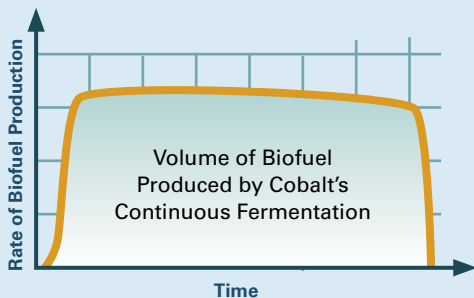
Continuous Alcohol Production

Biofuels are typically produced via batch fermentation, with fuel production only occurring in the latter portion of the fermentation. Cobalt is developing and patenting key production monitoring technologies that will enable the fermentation process to run continuously – "poising" the fermentation at peak production rates for extended periods of time. By combining this approach with our microbial physiology and genetic engineering expertise, Cobalt can substantially increase the rate of alcohol fuel production, thereby reducing production cost.

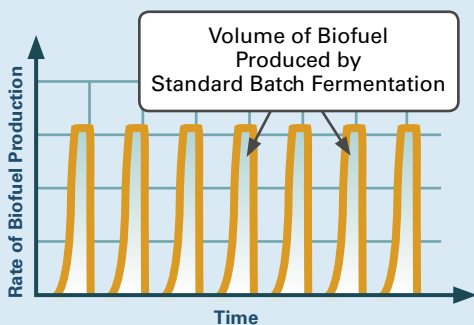
Energy and Water Efficiency

The concentration of biofuel, or titer, in the fermentation steep determines the cost of the energy intensive separation process. Cobalt's patented fluid separations technology (termed vapor compression distillation, or VCD) removes alcohol from the fermentation steep using one-fourth the energy required for typical separation techniques. The titer also determines the overall water usage of the biorefinery. Cobalt's technology has the additional advantage of drastically reducing water usage by recycling the VCD-purified water back into the process with a substantial reduction in the overall water requirement.

Cobalt's Biofuel Technology



Standard Biofuel Technology



Cobalt's continuous fermentation process substantially increases the rate of fuel production and reduces production costs.

For more information please visit the Cobalt Biofuels website at: www.cobaltbiofuels.com. Contact us at: (650) 230-0760

