



One inspiration builds on another.

Isobutanol builds on the success of the ethanol industry. It opens exciting new markets for the fermentation alcohol business in synthetic rubber, plastics – even jet fuel. Isobutanol is a platform chemical that can be sold neat or converted to a renewable, “drop in” hydrocarbon for dozens of applications. Now, your production can follow the best opportunities. With the Gevo/ICM, Inc. turnkey retrofit package, you can continue to produce ethanol during the conversion. And after the retrofit is complete, you can switch back and forth between butanol and ethanol after each batch run. What is the future of biorefining? Visit gevo.com to find out.



Expand Your Options With Isobutanol

An existing multi-billion dollar market is now available for ethanol producers: isobutanol. With a simple retrofit of your ethanol plant, you gain the capacity to produce either ethanol or isobutanol and with it, gain a vast expansion of marketing options.

What is Isobutanol? Like ethanol, isobutanol is an alcohol made via fermentation but with a special difference: isobutanol can be sold as a gasoline blendstock or to the chemicals market. But, it can also be easily converted to a 'drop-in' hydrocarbon called isobutylene. Isobutylene has a huge existing market that includes everything from aviation fuel to plastics and rubber.

How is it made? The process to create isobutanol starts just like ethanol, using corn as a feedstock but using a different yeast. Before distillation, the isobutanol is continuously separated in a unit designed for simple retrofitting. At its simplest, your ethanol plant adds the capacity to become a true biorefinery. As a biorefinery, you have access to multiple markets, strengthening your business for the long-term.

What's Gevo bring to the party? Fitting your plant with the ability to produce isobutanol is made easy by Gevo and its engineering partner, ICM. Gevo has flexible and mutually beneficial business models to minimize your cost. Gevo also markets the product to maximize the value for each individual plant.



**For more information,
visit gevo.com or call
303.858.8358.**

With Isobutanol, You Tap Large Markets with Attractive Margins

Chemical Markets

A 13 Billion Gallon Per Year (BGPY) Market

APPLICATIONS AND MARKET SIZE

- Isobutanol = 150 MGPY
- Isobutylene = 1 BGPY
- Acrylics = 167 MGPY
- PET/Polyester = 11 BGPY

END PRODUCTS

- Tires, lubricants, solvents and coatings
- Packaging, plastic bottles, etc.

BENEFITS OF USING ISOBUTANOL

- Diversity of feedstock
- Independence from refiners
- Reduction of petroleum feedstock volatility
- Sustainability, product differentiation

Fuel Markets

A 164 BGPY Market

APPLICATIONS AND MARKET SIZE

- Isobutanol = 41 BGPY
- Isobutylene = 3 BGPY
- Isooctene/ane = 77 BGPY
- Jet fuel = 43 BGPY

END PRODUCTS

- Gasoline
- Jet Fuel

BENEFITS OF USING ISOBUTANOL

- Low RVP gasoline blend stock
- Renewable, low carbon fuels
- Multiple molecules and products
- Reduce dependence on foreign oil