

# Quantanol LLC

## White Paper

Copyright February 2023



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A purchaser should not purchase ACOF tokens for speculative or investment purposes. Purchasers should only purchase ACOF tokens if they fully understand the nature of the ACOF tokens and accept the risks inherent to the ACOF tokens.

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The regulatory status of crypto tokens and digital assets is currently unsettled, varies among jurisdictions and subject to significant uncertainty. It is possible that in the future, certain laws, regulations, policies or rules relating to crypto tokens, digital assets, blockchain technology, or blockchain applications may be implemented which may directly or indirectly affect or restrict crypto token holders' right to acquire, own, hold, sell, convert, trade, or use crypto tokens.

The uncertainty in tax legislation relating to crypto tokens and digital assets may expose crypto token holders to tax consequences associated with the use or trading of crypto token.

Digital assets and related products and services carry significant risks. Potential purchasers should take into account all of the above and assess the nature of, and their own appetite for, relevant risks independently and consult their advisers before making any decisions.

## **Professional advice**

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# Executive Summary

## Mission & Vision

Quantanol was founded on the belief that it is your basic human right to choose the fuel you want. We believe that decentralization holds the key to empowering people around the world to better safeguard their rights, and that we are helping the world move in this direction by accelerating the transition to bio-butanol where higher carbon emission fuels are currently used.

### Mission:

#### Accelerate the World's Transition to Clean Energy

We believe that by accelerating the transition to adopting butanol, we can help people globally to:

**Reduce their emissions** - ability to access butanol anytime and anywhere

**Transition gradually** – butanol will reduce emissions by 40% on the way to all electric

**Protect the environment** – zero carbon emissions is the goal.

### Vision:

Quantanol in Every Tank™.

In our journey to achieve this vision, we are:

- Redefining how butanol is viewed, produced and consumed
- improving engine technology by engaging current industry leaders
- designing beautiful, simple and useful services that have a lasting, positive impact on energy

## Problem Statement and Our Strategy

### Key Challenges in Driving Butanol Adoption

We see the following key challenges in driving butanol adoption:

- current dominance and control of oil companies
- current ethanol subsidy programs
- current lack of public knowledge and demand for butanol

### Our Strategy

To tackle the challenges above, we are engaging in:

1. **Putting market pressure on oil companies**
2. **Breaking the farm to fuel cycle of ethanol**
3. **Educating the public about the benefits of butanol**

Our strategy is to leverage butanol production **as the primary tool for driving adoption and consumer acquisition**, while building futures trading **and financial services solutions as the major sources of revenue**. This strategy creates and self-sustains a virtuous cycle: demand bring users onto the platform, whereas trading and financial services generate revenue that can be reinvested into production.

### Value Proposition

**ACOF token value** lets buyers know that the butanol production chain is healthy and growing, and that they are personally helping to reduce carbon emissions by 20% where higher carbon producing petroleum fuels would have been used. The US Department of Energy has created strict standards for butanol through its Alternative Fuels Data Center as follows:

## Biobutanol

Butanol, a 4-carbon alcohol (butyl alcohol), is produced from the same feedstocks as ethanol, including corn grain and other biomass. The term biobutanol refers to butanol made from biomass feedstocks. The benefits of biobutanol, when compared with ethanol, are that biobutanol is [immiscible](#) in water, has a higher energy content, and has a lower Reid [vapor pressure](#). Under the [Renewable Fuel Standard](#), corn grain butanol meets the renewable fuel 20% greenhouse gas emission reduction threshold.

While there are four isomers of butanol, the most active commercialization work centers on isobutanol for blending with gasoline. Two [Clean Air Act](#) provisions allow for blending of up to 12.5% biobutanol by volume with gasoline. Additionally, under a waiver granted by the U.S. Environmental Protection Agency (EPA), a 16% biobutanol blend is a legal fuel equivalent to E10 (10% ethanol, 90% gasoline). Butanol has an ASTM D7862 fuel quality standard for blends up to 12.5% with gasoline. The two primary companies manufacturing biobutanol are Butamax and Gevo.

Both companies have registered for on-highway vehicle sales with EPA. As of June 2018, the EPA approved up to 16% biobutanol blends. It is important to ensure that biobutanol blended with gasoline does not result in an oxygen content exceeding the EPA limit of 3.7%. The EPA-approved 16% biobutanol level was determined based on the assumption that no other oxygenates (e.g., ethanol) are included in the fuel blend. Biobutanol blends are currently sold in select parts of the United States.

Oak Ridge National Laboratory has researched the compatibility of fueling equipment materials with biobutanol and found that equipment compatible with ethanol blends is also compatible with biobutanol. Underwriters Laboratories announced in 2013 that equipment certified under testing subject 87A (for blends above E10) could also retain certification if used with biobutanol. It is anticipated that biobutanol would be distributed by tanker truck and rail, with the potential for transportation in pipelines upon research demonstrating its safety.

## Production

The first biobutanol plants were retrofits of existing corn ethanol plants. The fuel is produced through fermentation of corn feedstock and the process is nearly identical to [fuel ethanol production from corn](#). Biobutanol companies produce a range of high-value products, including transportation fuel. Primary coproducts of biobutanol plants may include solvents/coatings, plastics, and fibers. Production of these coproducts helps biobutanol companies improve economic performance through diversification of product offerings. A challenge for biobutanol is that more ethanol than biobutanol can be produced from a bushel of corn.

Gevo began producing a cellulosic biobutanol that is converted to jet fuel, which meets the fuel quality specification D7566 for use by commercial airlines (Voegelé 2016b). Butamax is retrofitting a corn ethanol plant to demonstrate its technology.

The near-term outlook for biobutanol production is limited, as the market has been small and intermittent since 2012. EPA Renewable Identification Number (RIN) data reports show that approximately 12,000 gallons entered the commercial market in 2013, none in 2014 and

2015, and more than 125,000 gallons in 2016. Furthermore, no biobutanol entered the market in 2017 or 2018.

Quantanol believes that this is primarily due to the termination of government subsidies during this period, and little interest by major industrial players. Read on to see how this will change in 2022.

## Benefits

Biobutanol is an alternative to conventional transportation fuels. The benefits of biobutanol include:

- **Higher energy content**—Biobutanol's energy content is relatively high among gasoline alternatives. However, biobutanol's energy density is 10%–20% lower than gasoline's energy density.
- **Lower Reid vapor pressure**—When compared with ethanol, biobutanol has a lower [vapor pressure](#), which means lower volatility and evaporative emissions.
- **Increased energy security**—Biobutanol can be produced domestically from a variety of feedstocks, while creating U.S. jobs.
- **Fewer emissions**—Fewer emissions are generated with the use of biobutanol compared with petroleum fuels. Carbon dioxide captured by growing feedstocks reduces overall greenhouse gas emissions by balancing carbon dioxide released from burning biobutanol.
- **More transport options**—Biobutanol is immiscible with water, meaning that it may be able to be transported in pipelines to reduce transport costs.

## Token Distribution and Planned Use

In November of 2021, Quantanol celebrated its one-year anniversary by announcing plans for ACOF token distribution. Quantanol pledged to burn 70 billion ACOF on the BSC blockchain reducing the total supply of the token to 30 billion ACOF. However, the token value and the liquidity that we had invested evaporated with impermanent loss. Not a costly lesson, but a valuable one. At COP27, the idea of cryptocurrency carbon credits was bounced around in the last moments. We can attest through months of research, capital, and effort, that no fuel market ever anywhere should be based on blockchain technology.

We have switched gears here in 2023, with the development of the first global biofuel production and delivery tracking software. Web-based and easy to use, producers and traders will be compelled to register their product. Accurate numbers like these will add value to the token assigned to each barrel. The US EPA currently uses a generated number system per gallon produced. By converting to barrels, streamlining, and privatizing the system, a real carbon credit can be accurately based on the percentage of carbon offset per barrel. Patent Pending Feb. 2023.



# Token Utility

The Alternative Carbon Offset Fuels (ACOF) token is our native token. ACOF also powers the overall Quantanol ecosystem, with utility ACOF payment, trading and financial services use cases. Currently, butanol falls under the realm of chemical companies and not oil companies. Crude oil has a futures market whose prices are controlled by speculation. Butanol is produced predominantly as a synthetic by major chemical companies around the world. Bio-butanol takes a back seat as a viable fuel mainly due to the ethanol cartel between farmers, oil companies, and the government. Quantanol LLC will break through this barrier to bio-butanol production and adoption by shifting market pressures through sales of ACOF.

Global n-Butanol market size is estimated at USD 3.1 billion in 2020 and is projected to reach USD 4.0 billion by 2025, at a CAGR of 5.0%. Companies such as BASF (Germany), The DOW Chemical Company (US), Eastman (US), OQ Chemicals (Germany), SASOL (South Africa), BASF PETRONAS (Malaysia), PetroChina (China), Mitsubishi Chemical Company (Japan), SINOPEC (China), and KH Neochem (Japan) falls under the winner's category. These companies cater to the requirements of their customers by providing customized products. Such advantages give these companies an edge over other companies that are component providers.

BASF (Germany), The DOW Chemical Company (US), Eastman (US), OQ Chemicals (Germany), and SASOL (South Africa) have a strong emphasis on using different strategies to maintain their competitive position in the market. These companies have adopted various inorganic growth strategies between 2016 and 2020 to enhance their regional presence and meet the growing demand for n-Butanol from emerging economies.

## **Opportunity: Emerging trends in bio-derived butanol**

N-Butanol has tremendous demand as bio-fuel. Currently, ethanol and bio-diesel are the preferred bio-fuels. In the next 5 to 10 years, bio-based n-Butanol will most likely be the preferred fuel owing to its properties such as high energy content, less hydrophilic nature, more energy per volume, low volatility, higher compatibility with the existing base of vehicles and oil infrastructure, environmentally friendly by-product (H<sub>2</sub>), and low corrosive nature. There are major manufacturers of bio-based n-Butanol just getting started with massive production volume. This is due to the fact that increased n-Butanol adoption is underway in major industries such as aviation and shipping. Quantanol LLC will enter and compete within this market space. Market dynamics will lift the value of ACOF tokens. Think of our efforts as a drop of water in the ocean: The drop is not competing with the sea, the drop is *becoming* the sea.

**End of Current White Paper**  
**Check back periodically for updates and revisions.**