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TITLE [ABSTRACT]

Ethane—a green(er) cleaner transportation fuel opportunity

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Given their reliance on emissions-heavy air transport and shipping transport, package delivery companies are challenged to reduce their carbon footprints. Package delivery companies like UPS have spent many millions of dollars using LNG (Liquefied Natural Gas). UPS-type hydraulic hybrid ground fleets can green their image by optimizing energy use in these low-emission vehicles, since stopping and starting is key to saving fuel in these types of vehicles.

With a residence time of only a mere 78 days in the troposphere after combustion, ethane (C₂H₆) can be a greener bridge in the transportation sector, and also since it is more economical than LNG. Ethane can act as an alternative fuel stock to expand this vehicle truck option, provide an oil saving solution, and reduce global warming emissions without drivers changing their driving habits. This is the best use of ethane adding the highest value using the simplest technology.

In the spring of 2015, an ethane bi-fuel field trial was conducted in Jewett, Texas, USA using a modified fuel injection system in a Ford F150 4.6L Triton pickup truck. **Emissions results returned 2 ppm particulate matter, 0.00% Carbon Monoxide (CO), 0.01% Carbon Dioxide (CO₂), and 20.79% Oxygen.** Performance results returned torque slightly better than gasoline, and fuel injection time slightly slower than gasoline, providing better combustion and a higher, 9% increase in miles/GGE (gasoline gallon equivalent) efficiency versus gasoline, resulting in **30% less CO₂/mile on the same vehicle compared to gasoline.**

We are proposing a follow-up test. This test will show the ethane truck functions well in colder conditions, heavy traffic, that it meets or exceeds California's air pollution laws, and that the test is repeatable. This paper will provide some background on ethane production and usage, and assert that it constitutes a better fuel system for the entire United States.