

NYSP21 Performs Evaluation of Diesel Fuel Additive for O'Brien & Gere

O'Brien & Gere, Inc. of North America (OBG), located in Rochester, New York offers comprehensive, sustainable, and affordable solutions for clients in areas of advanced manufacturing, energy environment, and water services. They strive to make the world better with every project especially as sustainability and the environment have become global topics.

OBG has identified a fuel additive and combustion enhancement technology that has previously demonstrated improved fuel efficiency and exhaust emissions when applied to combustion processes utilizing fossil fuels. The new fuel additive is claimed to enhance combustion through a proprietary process that initializes during combustion.

CHALLENGE

OBG requested assistance from New York State Pollution Prevention Institute (NYSP21) to perform an independent third party assessment to compare fuel efficiency, operating temperature, and exhaust gas emissions products during operation of a medium duty diesel engine operating with and without fuel additive/catalyst supplied by OBG.



Golisano Institute for Sustainability Dynamometer Facility

SOLUTION

NYSP21 performed an assessment of the proprietary diesel fuel additive in Rochester Institute of Technology's (RIT) Vehicle Dynamics Test Lab, evaluating fuel efficiency and exhaust gas emissions: CO, CO₂, NO, NO₂, O₂, unburned hydrocarbons, and excess air. NYSP21 performed engine testing at nine constant speed and load points, full power engine mapping, and a US EPA Federal Test Procedure FTP-75 driving cycle, comparing results for both untreated and treated No. 2 Ultra Low Sulfur Diesel fuel (ULSD).

CHALLENGE

- OBG requested NYSP21 to perform an independent third party assessment of the fuel additive's effectiveness for improving fuel economy and engine exhaust emissions

SOLUTION

- NYSP21 performed an assessment of the proprietary diesel fuel treatment in RIT's Vehicle Dynamics Test Lab, evaluating fuel efficiency and exhaust gas emissions: CO, CO₂, NO, NO₂, O₂, unburned hydrocarbons, and excess air

RESULTS

- Engine dynamometer testing in RIT's Vehicle Dynamics Test Lab showed a 23% reduction in NO₂ emissions when using No. 2 Ultra Low Sulfur Diesel (ULSD) fuel treated with the additive
- Detailed results are available from OBG upon request

RESULTS

The work performed by NYSP2I at RIT led to key findings of the performance of OBG's proprietary fuel additive when mixed with No. 2 ULSD fuel.

Statistical analysis of the available collected data did not indicate changes in power, fuel efficiency or fuel consumed during the driving cycle using treated fuel vs. untreated fuel. Three measured responses indicated statistically significant differences between the treated fuel and untreated fuel as tested in RIT's engine dynamometer lab.

- NO₂ emissions were reduced by an average of 23% from 27.88 ppm to 21.39 ppm when using the fuel additive vs. untreated No. 2 Ultra Low Sulfur Diesel fuel.
- Engine head temperature increased by 1.6% when using the fuel additive from an average of 153.3°F to 155.7.
- The combustion heat rejected was increased by an average of 15% from 509 J/sec to 585 J/sec when using the fuel additive.

OBG plans to blend and manufacture the diesel fuel additive in New York State, estimating a positive economic impact in manufacturing and application of their fuel additive technology.

Success of this product line is forecasted to help create up to 10 New York State jobs in over a three-year period upon commercialization.

NYSP2I PARTNERS



New York Manufacturing Extension Partnership

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For more information please contact us:

111 Lomb Memorial Drive, Bldg. 78
Rochester, NY 14623

Tel: 585-475-2512

Web: nysp2i.rit.edu

E-mail: nysp2i@rit.edu

