

SPI.Systems Evaluates the Effect of its A-SPIER® Technology on Fuel Efficiency



SPI.Systems Corporation

Located in Rochester, New York, SPI.Systems Corporation (SPI) has developed a "gas balanced" exhaust emissions control system named A-SPIER®.

Challenge

SPI wanted to determine the effect of its A-SPIER® technology on the fuel mileage of a tractor and trailer. SPI requested assistance from the New York State Pollution Prevention Institute (NYSP2I) with comparing the fuel efficiency of a Class 8 Tractor hauling a 40,000 lb load with and without the A-SPIER® system operational.

Solutions

NYSP2I performed a field evaluation to compare the fuel efficiency of the tractor with and without the A-SPIER® system. A series of six drive cycles were performed: three with the A-SPIER® inactive and three with it active. The A-SPIER® condition for each drive cycle was randomized prior to the testing. The evaluation was conducted as a blind study so neither the driver nor the SPI engineer knew the A-SPIER® status until after the testing was completed. NYSP2I recorded the fuel consumed, mileage, and engine data for each drive cycle and used the data to calculate the fuel economy for each test. A statistical analysis was performed to determine the effect of the A-SPIER® system on the fuel mileage.

Results

The work performed by NYSP2I predicted that an 18% improvement in the fuel economy with a 92% statistical confidence level was achieved by using SPI's A-SPIER® technology on a Class 8 Tractor towing a 40,000 lb load. It should be noted that the predicted improvement is limited to the specific conditions of the

Challenge

- SPI wanted to determine the effect of its A-SPIER® technology on the fuel efficiency of a Class 8 Tractor hauling a 40,000 pound load.

Solution

- NYSP2I conducted a series of six drive tests and used the data to calculate the fuel economy of the tractor with and without the A-SPIER® system.

Results

- The use of SPI's A-SPIER® system led to an 18% improvement in the fuel economy of a Class 8 Tractor.

conducted testing.

SPI is conducting further experiment repetitions of the same tests to improve the prediction accuracy. SPI may also wish to conduct tests of their A-SPIER® technology under different test conditions to learn about the most effective use of its product.

“The work of NYSP21 in helping us quantify our impressive fuel economy improvements made possible by our new A-SPIER SYSTEM™ technology is greatly appreciated. The professional engineering insight and teamwork were very supportive and helpful.”

Jack Schickler
CEO

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