

H₂HYDROGEN

TECHNOLOGY APPLICATIONS, INC.

Hybrid Hydrogen Oxygen System (HHOS) Tested

Summary

In 51-mile test track tests on May 19, 2003, the HHOS Electrolyzer installed with a heavy duty alternator and additional battery power increased gas mileage in the prototype test vehicle from 24.5 miles per gallon to 49.0 miles per gallon without increasing water or oil temperatures.

Test Equipment

On **May 19, 2003**, Hydrogen Technology Applications, Inc. demonstrated and tested its patent pending Hybrid Hydrogen Oxygen System in a prototype vehicle. The test was conducted on the test track of a major U.S. automotive supplier.

Prototype Vehicle: A 1994 1.9L 4-cylinder Ford Escort Wagon with manual transmission retrofitted with the HHOS.

Prototype System: The HHOS that was demonstrated and tested included the following main components:

1. **Heavy Duty Alternator** used as a replacement for the vehicle's factory unit. Size of the heavy-duty alternator is minimally larger than the factory unit.
2. **Electrolyzer** utilized to create the Hydrogen/Oxygen mixed gas, measuring 12" high by 8" wide by 24" long and weighing approximately 30-35 lbs when completely filled with water/electrolyte solution (3 gallons). On the prototype vehicle (1994 Ford Escort Wagon) the Electrolyzer was mounted in the rear compartment.
3. **Two Auxiliary Batteries** utilized to store the electrical power created by the Heavy-Duty Alternator and to distribute the electrical power required by the Electrolyzer. These heavy-duty batteries are the size of standard car batteries and were also mounted in the rear of the prototype vehicle.

The HHOS produces Aquygen™ Gas at low pressure (less than 50 PSI) on demand while the vehicle is running, while utilizing the vehicle's 12-volt electrical system to power the Electrolyzer. Aquygen™ Gas is not stored on board the vehicle. It is immediately mixed with the vehicle's traditional fuel supply in the engine's combustion chamber (via the vehicle's existing vacuum system) and consumed during the combustion cycle.



H₂HYDROGEN

TECHNOLOGY APPLICATIONS, INC.

Test and Demonstration Results

Two 51.5-mile tests were conducted on the test track of a major U.S. automotive supplier, on Monday, May 19th, 2003. The air temperature at the time of both tests was 59° F.

The first test was conducted with the prototype vehicle operating on gasoline only. The prototype vehicle was topped off with fuel from the test track fuel pump and ran the 51.5 miles at 60 mph with the AC off. The prototype vehicle was then topped off with fuel from the test track fuel pump and it was determined that the prototype vehicle consumed 2.1 gallons of fuel. For this 51.5-mile test, the prototype vehicle averaged **24.5 mpg**.

The second test was conducted with the prototype vehicle operating with the HHOS on. The prototype vehicle was topped off with fuel from the test track fuel pump and ran the 51.5 miles at 60 mph with the AC off. The prototype vehicle was then topped off with fuel from the test track fuel pump and it was determined that the prototype vehicle consumed 1.05 gallons of fuel. For this 51.5-mile test, the prototype vehicle averaged **49.0 mpg**.

Miles Driven	HHOS Amps	Electrolyzer Temperature	Electrolyzer Gas Pressure
4	150	110	30 psi
12	151	110	26 psi
20	152	110	26 psi
25	152	117	26 psi
35	150	123	23 psi
42	149	126	28 psi
50	148	131	30 psi

Table 1: Additional HHOS Test Results by Miles Driven

This document is published at http://hytechapps.com/aquygen/hhos_test_20030519.pdf.
More information about the HHOS is available at <http://hytechapps.com/aquygen/hhos>.