

## Aardvark's Comments on HHO

01/21/12

On aardvark.com: [http://aardvark.co.nz/hho\\_fraud.shtml](http://aardvark.co.nz/hho_fraud.shtml) (dated August 2008) Bruce Simpson offers “proof” that HHO can't possibly work.

His conclusion is that the energy needed to generate HHO is greater than the additional amount of useful energy produced from using it. A study that he chooses to base this calculation on was a dynamometer test done by two Bulgarian students presented in Barcelona Spain in 2004 at an event called FISITA which we have posted at <http://hho-research.org/sc11.pdf>.

This sort of analysis is exactly the sort of thing we have done for other studies, although we have derived an actual equation and made calculations for specific data points at various dynamometer speeds and loads found at <http://hho-research.org/wp12.pdf>. This analysis contradicts Mr. Simpson's determination. The additional amount of energy produced is usually much *greater* than that used by the HHO cell. The difficulty with using the FISITA study is that they used a comparatively high flow rate on a very small engine. In the study, they never directly measure brake specific fuel consumption. A proportional increase in brake specific fuel consumption has to be assumed based on this data.

There are dynamometer studies that better reflect use of HHO in applications on Diesel vehicles. The ones we know of are listed here:

<http://www.hydrogen-boost.com/May%202007.html> Purdue study May 2007

<http://www.hydrogen-boost.com/raw%20data.html> Purdue study – raw data

<http://www.hydrogen-boost.com/March%202010.html> UNOH study March 2010

<http://www.hydrogen-boost.com/August%202008.html> Fox Valley study August 2008

<http://library.cu.edu.tr/tezler/7998.pdf> Master's thesis of A.C. Yilmaz approved on 12/07/2010

We have done a more recent study in 2012. In this report, we calculate vehicle fuel mileage from dynamometer data obtained in the lab. We also apply a statistical test to a 3 month mileage log obtaining a p-value which was 0.0003 and we propose a method for doing better validation of road tests with Diesel powered vehicles. This is developed in a two part document found at:

[http://www.almeotech.com/docs/part1\\_b.pdf](http://www.almeotech.com/docs/part1_b.pdf)

[http://www.almeotech.com/docs/part2\\_b.pdf](http://www.almeotech.com/docs/part2_b.pdf)