

# Multi-Fuel Analysis

Boyle, Jackson (School: Delta High School)

When purchasing a car, consumers must select what type of fuel they want to use in the car. The ability to use one engine that could run on multiple fuel types would allow consumers to choose the fuel used based on need and/or cost. A modified four-stroke engine was used to compare fuel emissions in both gaseous and liquid states. Fuels that were tested include alcohol, diesel, gasoline, and propane. Others fuels tested include WD-40, Marvel Mystery Oil, and oxyhydrogen. The multi-fuel system utilizes a custom engineered carburation system allowing for an 11 to 12 air-fuel ratio. The air to fuel ratio allows one engine to run multiple fuel types. The tests for gaseous fuels utilized a low-pressure natural gas regulator and a milled venturi for gaseous carburation. Utilizing Verner LabQuest sensors in the exhaust, the parts per million of oxygen and carbon dioxide emissions were recorded. Emission results from each test concluded the oxyhydrogen had the lowest carbon dioxide parts per million (74) and had the highest average level of oxygen parts per million (165,236). Future applications could include vehicles that have the capability to run an internal combustion engine with multi-fuels, such as alcohol, diesel, gasoline, oils, and oxyhydrogen. These alternative fuels must be an equivalent to or supersede options available today.

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