Optimization of Gasoline Performance Through Physical Changes Before the Combustion Process

Romero, Patricia

Due to the high consumption of gasoline around the world, it becomes a priority to look for alternatives that can reduce its consumption. The research's purpose is to reduce gasoline consumption by optimizing its performance which in turn could accomplish environmental and economic benefits. Could a physical change in gasoline, like agitation by air injection and/or the reduction of gasoline temperature before the combustion process, optimize gasoline performance? The hypothesis was: A reduction of gasoline temperature or air injection will help optimize its performance resulting in better gasoline utilization. Nevertheless, gasoline temperature reduction will be the most effective method. To test the hypothesis a 6.5 hp engine was used. The gasoline tank was replaced by a burette and gasoline was transferred from it with a gasoline feeding line. For test one, air was injected to gasoline and for test two, gasoline temperature was reduced before the combustion process. Gasoline consumption was measured from readings of gasoline volume in the burette after each test. Data obtained indicated that the reduction of gasoline temperature produced a gasoline performance increase of 11% and, air injection produced a performance increase of 3.9%. To validate the results, the experiment was repeated three times. It was concluded that the hypothesis was correct because for both tests gasoline performance was increased and thus, the amount of gasoline needed to operate the engine decreased. Nevertheless, gasoline performance was higher when its temperature was reduced. This idea can be implemented in a car to reduce gasoline consumption.

Awards Won: