

## **An Investigation of Water Atomizer in Ejected Gas of a Vehicle Engine**

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**Abstract :** People faced pollution threaten in modern age although the standard of exhaust gas of vehicles has been established. The goal of this study is to investigate the effect of water atomizer in a vehicle emission system. Diluted 20% ammonia water was used in spraying system. Micro particles produced by exhausted gas from engine of vehicle which were cumulated through atomized spray in a self-development collector. In experiments, a self-designed atomization model plate and a gas tank controlled by the micro-processor using Pulse Width Modulation (PWM) logic was prepared for exhaust test. The gas from gasoline-engine of vehicle was purified with the model panel collector. A soft well named ANSYS was utilized for analyzing the distribution condition of rejected gas. Micro substance and percentage of CO, HC, CO<sub>2</sub>, NO<sub>x</sub> in exhausted gas were investigated at different engine speed, and atomizer vibration frequency. Exceptional results in the vehicle engine emissions measurement were obtained. The temperature of exhausted gas can be decreased 30C. Micro substances PM<sub>10</sub> can be decreased and the percentage of CO can be decreased more than 55% at 2500RPM by proposed system. Value of CO, HC, CO<sub>2</sub> and NO<sub>x</sub> was all decreased when atomizers were used with water.

**Keywords :** atomizer, CO, HC, NO<sub>x</sub>, PM<sub>2.5</sub>

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