

Therdsak Phetblengsri 2010: Air Pollutants Emission Factor from Light Duty Gasoline and Light Duty Diesel Vehicles. Master of Science (Environmental Technology and Management), Major Field: Environmental Technology and Management, Department of Environmental Science. Thesis Advisor: Miss. Thitima Rungratanaubon, Ph.D. 155 pages.

The aim of this research is to study the Emission Factor (EF) and Fuel Consumption (FC) of motor vehicles. The car sample was tested on Chassis Dynamometer. The exhaust sample was collected directly from the tailpipe using Constant Volume Sampling (CVS) system while the car was driving with the variation in speed and acceleration following the Bangkok driving pattern. The car samples were comprised of the light duty gasoline vehicles (passenger car) which using gasoline 91, 95 and gasohol 91, 95, E20 and liquefied petroleum gas (LPG) as their fuel, and the light duty diesel vehicles (truck) which using regular diesel and biodiesel (B5) as their fuel.

The study revealed that the emission factors of the light duty gasoline vehicles were: HC = 0.736, CO = 2.342, NO<sub>x</sub> = 1.133, CO<sub>2</sub> = 164 (gram per kilometer) and FC = 12.907 (kilometer per liter) respectively. For the light duty diesel vehicles, the emission factors were: HC = 0.105, CO = 0.446, NO<sub>x</sub> = 1.119, CO<sub>2</sub> = 222, PM = 0.086 (gram per kilometer) and FC = 12.108 (kilometer per liter), respectively. The total emission load (EL) was evaluated by using the Ladprao road at during times 07.00 am to 07.00 pm as tested route. There were HC = 159, CO = 521, NO<sub>x</sub> = 358, CO<sub>2</sub> = 58,984 (tons per year), PM = 10 tons per year (for light duty diesel vehicle only) and total fuel consumption of light duty gasoline vehicle = 15,477 thousand-liter per year and light duty diesel vehicle = 9,730 thousand-liter per year, respectively.

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