

Molthira Sodchuen 2011: Evaluation of Air Pollutant Emission Factors from Motorcycles. Master of Science (Environmental Technology and Management), Major Field: Environmental Technology and Management, Department of Environmental Science. Thesis Advisor: Assistant Professor Thitima Rungratanaubon, Ph.D. 100 pages.

The aim of this research was to study the Emission Factor (EF) and Fuel Consumption (FC) of 2-stroke and 4- stroke motorcycles. The samples were 11 of 2-stroke and 26 of 4-stroke motorcycles. The exhaust sample was collected directly from the motorcycle's tailpipe using Constant Volume Sampling (CVS) while running on the Chassis Dynamometer. There were four different driving speeds used which were 1) 20-30, 2) 30-40, 3) 40-60 and 4) in all speed range (20-60 km/h). Fuel used in the study was gasoline 91, gasohol 91 and gasohol 95.

The study revealed that the 2-stroke motorcycle which using gasoline 91, gasohol 91 and gasohol 95 emitted THC 6.74, 11.13 and 5.25 times higher than the 4-stroke motorcycle did. The 2-stroke motorcycle also emitted CO greater than the 4-stroke motorcycle 1.46, 1.57 and 1.39 times, respectively. The study on Fuel Consumption (in kilometer per liter unit) showed that the 4-stroke motorcycle at all speed range got more distance than the 2-stroke motorcycles did for all types of fuel 1.16 ,1.38 and 1.25 times, respectively. The statistical t-test revealed that the amounts of both THC and NO_x between 2 and 4 stroke motorcycles were significantly different at the 0.05 confidential level. Otherwise, there was not significantly different at the confidential level of 95% for CO₂.

Student's signature

Thesis Advisor's signature