



## The Calculation of Average Vehicles Emission from Environmental Audit in Toll-Road Surabaya-Gresik at Indonesia

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**Abstract :** The toll road Surabaya-Gresik by the length of 20,732 Km has been operated since March 8<sup>th</sup> 1993 and during the operation it did not have the Environmental Impact Assessment (EIA) study. Based on Ministry of Environment regulation No.14 year 2014, the activity in the toll road Surabaya-Gresik needs to be assessed by EIA study in form of Environmental Evaluation Document with based on Environmental Audit. Environmental Audit of toll road Surabaya-Gresik was created in year 2015 and the activity get the environmental feasibility letter as well as environmental permit. One of the negative impacts from the activity in operation stage is the degradation quality of air caused by vehicle emission. The method to calculate the average emission is conducted by using transportation data from year 2009 to 2014 by the unit of Passenger Car Unit (PCU)/month. Based on the original unit, conversions to PCU/hour as well as the average value calculation are conducted for CH<sub>4</sub>, CO, N<sub>2</sub>O, and CO<sub>2</sub> parameters. The result reveals the value of CH<sub>4</sub>, CO, N<sub>2</sub>O, CO<sub>2</sub> in Surabaya-Gresik line as 995 g/hour, 610902 g/hour, 202 g/hour, and 6108403 g/hour respectively. While on Gresik-Surabaya line as 2214 g/hour, 1358569 g/hour, 449 g/hour, 13584314 g/hour sequentially.

**Keywords :** Vehicle emission, CH<sub>4</sub>, CO, N<sub>2</sub>O, CO<sub>2</sub>.

Mohammad Razif *et al* /International Journal of ChemTech Research, 2016,9(6),pp 657-668.

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