This study aimed to compare the performance and pollutant resulting from liquid fuel (premium) with gas fuel (LPG) using injection systems type 1. This research type is experimental research. The object in this study is Honda Supra X 125 motorcycle. Exhaust emissions testing based on ISO standards 19-71118.3-2005 and testing engine performance based on SAE J1349. Equipment and instruments used in this study are the exhaust gas analyzer, rpm counter and oil temperature meter, chassis dynamometer, stop watch, fuel meter, injector, converter kit, digital scale and blower. The fuel used is gas fuel with LPG type. The test carried out in the Testing Engine Performance Laboratory, Mechanical Engineering Department of Unesa.

The result show that using LPG fuel and premium fuel for rotation approximately 3000 rpm – 9000 rpm in using LPG fuel decrease torque 13.29 %; decrease engine power 16.75 %; decrease the effective pressure average 12.97 %; increase the thermal efficiency 6.38 %; reduce specific fuel consumption 8.28 %; reduce emission of carbon monoxide (CO) 85.69 %; reduce emission of carbon dioxide (CO2) 32.86 %; and increase level emission of hydrocarbon (HC) 92.79 % compared with using premium fuel on Supra X 125 cc motorcycle which is assembly in 2011.

Keywords : gas fuel, LPG, exhaust emissions and engine performance.