ABSTRACT

In the recent days research and development is the prime focus of science and engineering. A major threat is the atmospheric pollution caused due to vehicle exhaust like air pollution and noise pollution. Statistically speaking maximum percentage of noise and air pollution is because of automobiles. In India traffic constitutes of 80% of two wheelers and the focus on reducing pollution in them being the ultimate objective of this project.

All the liquids have more adsorption property than air. An idea of reducing sound by damping inside the water has been thought off. The use of water will reduce the exhaust emissions and also filters the pollutants which are discharged to the atmosphere by the exhaust gas. This combined idea is initiated in the developing of exhaust system to achieve maximum control over noise and air pollution in the atmosphere. There are lot of issues which arouse regarding selection of material, use of gauge and design of the liquid chamber. The development of design process was narrowed down to remove the liquid chamber and creating a baffle chamber with gel insertion which acts as a semi liquid chamber which has a very good damping effect and adsorption property as any commercially available high viscous liquids. The issues such as choking of exhaust gas in muffler and rapid cooling of gases due to gel insertion were taken care by changing the dimension of muffler and making a conical muffler to a free flow baffle muffler chamber.

The body of the Liquid Exhaust System was fabricated using mild steel sheet. The glass wool sheet is used in the system in damping air as it traps air in many small pockets between the glass and these small air pockets result in thermal insulation properties. The gel used for damping is Poly Urethane foam.

The size of the silencer muffler is 400mm in length and 100mm in diameter which is conically tapered to 50mm in diameter to the end.

Performance of the fabricated exhaust system was tested by fixing it in Royal Enfield Classic Bullet 350cc motorcycle and got the acceptable results as per the objective of the project. The sound is reduced by 10 dB and CO by 33.37%