VARIATION OF THE SIZE OF THE COPPER FILTER PERFORATED PLATE ON THE DIESEL PARTICULATE TRAP (DPT) AGAINST THE EXHAUST SMOKE CONCENTRATION OF THE 2.5 L DIESEL ENGINE FUELED BY PERTAMINA DEX

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ABSTRACT

Exhaust emissions are gases produced during the fuel combustion process in vehicles. Incomplete combustion will cause exhaust emissions in the form of soot. Soot is a particle that is harmful to health because its components consist of 80.5% carbon. One technology that can convert soot into other particles is Diesel Particulate Trap. This technology will work perfectly if supported by quality fuel, for example the use of Pertamina dex fuel which is good for diesel engines. The purpose of this study is to determine the effectiveness of the use of Diesel Particulate Trap (DPT) and the size of perforated plate filter that should be used in minimizing the density of exhaust gas. Through this research, it is expected that the use of Diesel Particuate Trap (DPT) will effectively reduce exhaust emissions produced by combustion so as to reduce air pollution. The results of this study are by using perforated plate filter size variations of 15 mm, 25 mm, and 35 mm. The 15 mm variation reduces by 2.78% from the standard exhaust which has an opacity value of 7.2% and has an opacity value of 7.0%. While the 25 mm variation reduces by 4.17% and the 35 mm variation reduces by 5.57%. It can be concluded that the use of Diesel Particulate Trap (DPT) and pertamina dex fuel can reduce the opacity of vehicle exhaust gas.

Keywords : Opacity, Perforated Plate Filter, copper