# MODIFIED CATALYTIC CONVERTER USING NANO COPPER AND SILVER COMPOSITE COATING

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ABSTRACT

One of the engineering technologies that can be used to reduce air pollution is the use of catalytic converter mounted on vehicle gas exhaust duct. Unfortunately, these tools are very expensive in the market and not all motor vehicles use these technologies, because the catalyst was made from expensive metals and rarely available in the market, such as: Palladium, Platinum and Rhodium. Besides, the catalyst is susceptible to premium fuel with low levels of lead (Pb) which results in the damage of the function of the catalyst due to blockage in the honeycomb Catalytic Converter. Therefore research needs to be done in the laboratory to test the other substrate materials as a catalyst, to study the ability of the catalyst in a catalytic converter to reduce exhaust emissions of Carbon Monoxide. This research will also study the performance capabilities and assess the effectiveness of silver-coated Copper catalysts which are designed in such a way to obtain the appropriate shape and type of Catalytic Converter catalyst and suitable for premium fuel motor vehicles. The result showed that Catalytic Converter design and modification of catalytic materials can be an alternative to overcome the high air pollution problem from the transportation sector, especially particular Carbon Monoxide exhaust emissions from gasoline motors. The use of silver-Coated Copper as a catalyst in the catalytic converter was significantly able to increase the reduction of Carbon Monoxide exhaust emissions. The increase of catalyst cells amount decreased the concentration of Carbon Monoxide exhaust emissions. Optimum Design of Model Catalytic Converter was able to reduce exhaust emissions of Carbon Monoxide.