

# **Pengujian Adsorben Berbahan Arang Aktif Ampas Tebu Dengan Campuran Katalis TiO<sub>2</sub> Terhadap Emisi Gas Buang Pada Motor Bensin**

*(Testing of Activated Charcoal Adsorbent Made from Bagasse With TiO<sub>2</sub> Catalysts Mixed Against Emissions In Motor Gasoline)*

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## **ABSTRACT**

*The combustion of fuel in internal combustion engines produce exhaust gases which theoretically contains elements of CO, NO<sub>2</sub>, HC, C, H<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>O and N<sub>2</sub>. The purpose of this study was to determine the effect of adding adsorbents made from bagasse activated charcoal to the exhaust gas emissions of gasoline-fueled vehicles to obtain the lowest levels of exhaust emissions of carbon monoxide (CO) and hydro carbon (HC). This research used experimental method, which will be conducted by addition of activators of potassium hydroxide (KOH) and the catalyst is titanium dioxide (TiO<sub>2</sub>). Tests were carried out at 1000 rpm, 2000 rpm, 3000 rpm, 4000 rpm and 5000 rpm. The results showed the most optimal decrease in CO<sub>2</sub> levels when using bagasse activated charcoal adsorbent with the addition of TiO<sub>2</sub> catalyst, the decrease obtained reached 43.3% compared to CO emissions in the standard exhaust ie from 1.94% vol. to 1.10% vol. As for the optimal HC reduction emissions when using activated charcoal adsorbent without TiO<sub>2</sub> catalyst, the obtained decrease reached 24% compared to standard exhaust which is from 156 ppm to 118.3 ppm. The decrease occurred only in activated charcoal, while the charcoal adsorbent without activation could not reduce exhaust emissions due to the pores of charcoal still caused the large amount of water in charcoal without activation.*

**Keywords:** *Adsorbent, Activated Charcoal, Bagasse, TiO<sub>2</sub>, Emission*