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## **MITIGATION OF GASEOUS EMISSION FROM BURNER SYSTEM UTILIZING ENVO DIESEL FUEL VIA AIR STAGING METHOD**

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### **Abstract**

Emission from the combustion processes can cause adverse effect to the environment. The formation of pollutants such as oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and oxides of sulphur (SO<sub>x</sub>) are hazardous and harmful to the ecosystem. Due to these pollutants and also depletion of fossil fuel, several steps should be taken in order to mitigate this problem. Biofuel is known as the potential replacement for fossil fuel. Envo Diesel is one form of biofuel that can be used on diesel engines and burner systems without any modification. It is produced by direct blending of palm oil with diesel fuel. This study was carried out to determine the performance of palm oil derived biofuel (Envo Diesel) on burner in terms of emission when applying staged air combustion. Emissions released from combustion chamber have been measured when applying the secondary staged air. The main purpose of this study was to determine the optimal blend for best performance compared to diesel when applying secondary air. Reductions of 67% and 54% can be achieved for NO<sub>x</sub> and SO<sub>2</sub> respectively. Smaller reduction of around 21% was achieved for CO emission.

*Key words:* air-staging, diesel, biodiesel, Envo Diesel, burner, emission gases, palm olein

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