

Research title: The Effect of The Height of Bed on Exhaust Gas in A Cyclone
Combustor for Burning Rice Husk Fuel

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ABSTRACT

This paper presents the experimental study of the combustion in a cyclone combustor. The combustion chamber is a cylindrical shape with 1.4 m in diameter and 2.8 m in height. The height of bed in chamber is designed to be adjustable at four levels: 30, 45, 50 and 60 cm as desired with a set of air nozzles placing circumferentially on the chamber to produce air-swirl flow inside. The feed rate of rice husk and air flow rate was held constant at 0.04 kg/s and 1.8 m³/s, respectively. Experimental results show that the emission of exhaust gas from stack is composed of O₂=18.4%, CO=1,562 ppm, SO_x=7 ppm and NO_x= 46 ppm at 50 cm bed-height. The maximum thermal efficiency is 78%.

Keywords: cyclone combustor, bed, air-swirl flow