
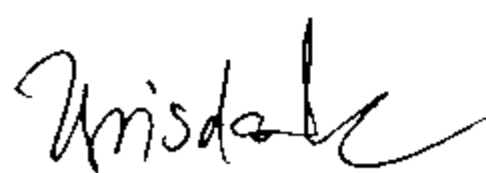


THESIS TLTLE : PERFORMANCE OF INFECTIOUS INCINERATOR FOR
HOSPITALS IN KHON HAEN MUNICIPALITY.

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ABSTRACT

The study of the performance of infectious incinerator for hospitals was objected to study the efficiency of combustion, by considering the possibility of waste reduction, oil consumption rate, incineration condition and air pollution emission from stack. The samples was designed by Environmental Health Division, and they were 3 hospitals of Ministry of Public Health in Khon Kaen municipality. The data was collected by observing and sampling for physical and elemental chemical analysis of infectious waste and bottom ash, including measuring the concentration of air pollution emission.

The results showed that incinerators of Khon Kaen hospital, Maternal and Child hospital and Neuropsychiatric hospital had the effective waste reduction of 96.8%, 97.1% and 97.9% by weight. The oil consumption rates were 21.6, 35.7 and 30.2 liter per hour, respectively. The main composition of infectious waste in Khon Kaen hospital was 54.1% rubber by weight, while in the Maternal and Child hospital and Neuropsychiatric hospital was cotton, 28.2% and 26.1% by weight. Metal was the least component of all hospitals. The chemical elemental

analysis was found that, which were 4 elements in the infectious waste : 55.1% of carbon, 3.8% of hydrogen, 0.8% of nitrogen and 40.3% of oxygen.

The investigation of furnace temperature, retention time and turbulence to the air pollution emission were studied. Besides the combustion in the furnace utilized too much percent of excess air, which related to the incineration condition and air pollution emission.

The products of combustion were classified into 2 forms. One was the bottom ash which had the average mean of 2.86%. It proved that all incinerators had efficiency to reduce the bottom ash to be lower than the standard level. The second was air pollution emission, carbonmonoxide, nitrogenoxide and sulfurdioxide release were found lower than the standard levels ; 7.7-272.2 ppm. (mean 131.68 ppm.), 24.6-51.2 ppm (mean 33.91 ppm) and 0-12.8 ppm (mean 3.35 ppm) respectively. On the other hand, the concentration of particular matter was 146.8-1101.2 mg/m³ (mean 411.8 mg/m³), which was higher than the standard level to 3-fold. Under the investigation, those incinerators worked satisfactorily by reducing bottom ash, air pollution and odor emission. It helps to prevent an effect on people 's health and also the environment, including the nearby 's complaint.