AN ABSTRACT OF A THESIS

A LABORATORY SCREENING STUDY OF CHEMICAL MEANS OF PRODUCING ACTIVATED CARBON

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Master of Science in Chemical Engineering

The purpose of this study was to measure the iodine number and yield of activated carbon obtained from shredded wood using zinc chloride, sodium carbonate, potassium carbonate, and phosphoric acid as activating reagents. This study was conducted at values of reaction times of one hour and two hours, reaction temperatures of 600 degrees Celsius to 800 degrees Celsius, and impregnation ratios of twenty-five percent to two-hundred percent. Yields of 31.6 percent to 33.2 percent and iodine numbers of 153 to 177 were obtained with sodium carbonate. With potassium carbonate, yields of 30.5 percent to 32.7 percent and iodine numbers of 237 to 357 were obtained. With phosphoric acid, yields of 48.0 percent to 55.1 percent and iodine numbers of 146 to 491 were obtained. When zinc chloride was used as activator, yields of 36.5 percent to 43.4 percent and iodine numbers of 525 to 1013 were obtained. Because the best result was obtained when using zinc chloride, more experiments were done with this activator.

Iodine number generally increased as impregnation ratio increased. Iodine number also increased at higher temperatures but the yield did not decrease significantly.

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CERTIFICATE OF APPROVAL OF THESIS

A LABORATORY SCREENING STUDY OF CHEMICAL MEANS OF PRODUCING ACTIVATED CARBON

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