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KEY WORD : ACTIVATED CARBON / PALM-OIL TRUNK / FLUIDIZED BED / SUPERHEATED STEAM ACTIVATION /

SURACHAI SUWANSANGCHUTO, ACTING LT. : PREPARATION OF ACTIVATED CARBON FROM PALM-OIL TRUNK BY SUPERHEATED STEAM ACTIVATION IN FLUIDIZED BED. THESIS ADVISOR : ASST. PROF. THARAPONG VITIDSANT, Ph.D.

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Preparation of activated carbon from palm-oil trunk was investigated in two parts: palm-oil trunk carbonization and superheated steam activation. Carbonization part was conducted in a fixed bed reactor, 15 cm. id. and 110 cm. in height. The studied variables were temperature and carbonization period. It was found that the optimum condition for 500 g. of palm-oil trunk, 2.54×2.54×2.54 cm. in dimension, was at 300 ^{0}C and 30 minutes. The char product yield was 23.81 % which consisted of 74.86 % fixed carbon, 21.78 % volatile matter and 3.36 % ash.

The superheated steam activation part was operated in a fluidized bed reactor, 11.0 cm. id. and 30.0 cm. in height. The studied variables were temperature and time of activation, char particle size, and U/Umf ratio. It was found that the optimum condition for 5.0 cm. in height of carbonized char were char particle size of 1.18-2.36 mm., temperature and time of activation at 850 ^{0}C and 6 minutes, and U/Umf ratio at 1.5 times. The product yield was 5.63 % activated carbon from palm-oil trunk. The activated carbon obtained had the surface area of 284.25 m^2/g, iodine adsorption 403.99 mg/g, methylene blue adsorption 161.54 mg/g, bulk density 0.548 g/cc., and ash content 5.49 %

ภาควิชา เคมีเทคนิค
สาขาวิชา เคมีเทคนิค
ปีการศึกษา 2542

ลายมือชื่อนิสิต.....
ลายมือชื่ออาจารย์ที่ปรึกษา.....
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....