OIL SPILL ABSORBENT FROM NATURAL MATERIALS

PREPARED BY

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ABSTRACT

Three types of natural materials were studied to produce low cost oil spill absorber i.e. rice husk, peat and coconut dreg. The raw materials were carbonised before being soaked with 1 M HCl or soaked with methanol. Carbonisation temperatures and times were varied from 300°C, 400°C, 500°C, and 600°C for 2, 3, and 4 hours. Their adsorption properties of charcoals produced from different treatments and materials were compared with untreated charcoal as standard. The quality of charcoal was determined by measuring the BET surface area, iodine number value, methylene blue number, and oil spill adsorption. Charcoals, which were treated with methanol, exhibit increase in surface area as compared to those, which treated with 1 M HCl and untreated one. The results show that the methanol-soaked rice husk charcoal was found to be better and suitable oil spill absorber than the other five types of charcoals produced. The yield of rice husk charcoal obtained from 40% to 61%, and the highest fixed carbon obtained was 55.1 %. The results of BET surface area value, iodine number value, methylene blue number, and oil spill adsorption obtained were 220.04m^2g^{-1}, 371.15mg/g, 30.44ml/g, and 8.04g of oil respectively. It is suggested that the carbonisation process, method of treatments and type of materials are responsible for the quality of charcoal produced.

PENGHARGAAN

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