OIL SPILL TREATMENT USING TREATED PEAT

By

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ABSTRACT

The use of treated peat for oil spill treatment is not a new discovery. There are several companies in the world were involved in the production of treated peat. As we already know, peat is one of the carbonaceous materials that can used to produce charcoal and activated carbon. The production of a treated peat (charcoal and treated charcoal) by using muffle furnace available at UiTM laboratory was done. Two samples of peat were prepared. A raw peat was placed in the porous ceramic. The chemical used in this research is Hydrochloric acid (HCl) – for impregnation purpose. Charcoal was produced by carbonized it in the muffle furnace by means of porous ceramic as burning medium. Treated charcoal was prepared by impregnating the charcoal produced in early step with 3 M HCl. This was done to compare the effectiveness (adsorption characteristics) of each method. Muffle furnace is use to burn the samples at high temperature (at least 550°C). Then the product was undergone quality tests to determine their porosity. The tests are Methylene Blue Decolorizing Power and Iodine Value. Then, the product was tested on crude petroleum, which is spread at the surface of water. The crude petroleum was supplied by PETRONAS.

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INTRODUCTION

Peat is a heterogeneous mixture of more or less decomposed plant (humus) material that has accumulated in a water-saturated environment and in absence of oxygen. Its structure ranges from more or less decomposed plant remains to a fine amorphic, colloidal mass. The warmer the climate, the quicker the plant material will decompose. The rate of accumulating plant material is greatest in areas where the temperature is high enough for plant growth but too low for the vigorous microbial activity that breakdown the plant material. Such conditions are found more frequently in the Northern Hemisphere.

Peats are extremely light organic soils, which develop under conditions in which there is a net accumulation of organic matter over time. Dry weight is primarily reliant on the degree of decomposition. Peats, which develop under extremely acidic, anoxic conditions, are usually the lightest. When this type of soil is broken apart plant parts and at times whole plants are easily distinguished. The heaviest peats are found in areas where decay occurs more rapidly. These soils are fine and powdery when dried and plant parts are virtually never distinguishable.

Peat forms in situations where a number of conditions exist over long periods of time. These are: -

i. The continuous annual growth of vegetation;

ii. The presence of moderate to relatively high levels of rainfall;