

**PRODUCTION OF ACTIVATED CARBON FROM PEAT  
BY CHEMICAL ACTIVATION METHOD**

**By**

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## ABSTRACT

### PRODUCTION OF ACTIVATED CARBON FROM PEAT BY CHEMICAL ACTIVATION METHOD

Peat was used as the raw material to produce activated carbon by chemical activation method using phosphoric acid as activating agent. The activation was performed at the various activation temperatures, which were 500, 600 and 700 °C, and at different activation period (3 and 5 hour). Before that, the peat was impregnated first at various soaking time (4, 8 and 12 hour) with concentrated phosphoric acid in order to compare their effect on pore development in activated carbon. This research was carried out to study the effect of washing process before and after carbonization to the porosity of the chemically produced activated carbon. Iodine number determination and methylene blue decolorizing power were used to check the quality and porosity of activated carbon. This study showed that, washing sample after carbonization gave the higher iodine number and methylene blue value for the activated carbon produced. The optimum condition for the production of activated carbon from peat by chemical activation was at 500°C, 12 hours impregnation period and 5 hours activation period. These results showed that the impregnation is required in order to achieve large surface area of activated carbon.

## CHAPTER 1

### INTRODUCTION

Activated carbons are unique and versatile adsorbents because of their extended surface area, microporous structure, universal adsorption effect, high adsorption capacity, and high degree of surface reactivity. They are extensively used to purify, decolorize, deodorize, dechlorinate, and detoxicate potable water; for solvent recovery and air purification in inhabited spaces such as restaurants, food processing and chemical industries; and in a variety of gas phase applications. They are also increasingly being used in hydrometallurgy for the recovery of gold and silver and other inorganics and in the treatment of domestic and industrial wastewaters. Their used in medicine for certain types of bacterial ailments is well known. Thus active carbons are of interest in many economic sectors and concern industries as diverse as food processing, pharmaceuticals, chemical, petroleum, mining, nuclear, automobile, and vacuum manufacturing [Bansal et. al., 1988].

The use of activated carbon in the form of carbonized wood dates back many centuries. The Egyptians used it around 1500 B.C. as an adsorbent for medicinal purposes and also as a purifying agent. The ancient Hindus in