

AN ABSTRACT OF A THESIS

151-2
31

LABORATORY STUDIES IN COAL REFINING

Abdulkarim Smaili

Master of Science in Chemical Engineering

The purpose of this work was to study a process of upgrading coal utilization. There were three elements to be investigated. These elements are coal washing, coal pyrolysis, and determination of the fate of sulfur in the washing and pyrolysis. The process consisted of two parts. In the first part, coal was pyrolyzed using the Modified Fischer-Assay method and the amounts and the sulfur contents of resulting oil, solid residue, and gas were determined. The solid residue was then washed and separated using the float-and-sink method into a low ash fraction and a high ash fraction. Sulfur analysis of both fractions was then conducted. In the second part, coal was washed and separated, using the same method of part 1, into a low ash coal and a high ash coal. Sulfur analysis of both fractions was performed and the low ash coal was pyrolyzed using the method of part 1. The sulfur content and the amount of oil, gas, and solid residue were determined. A comparison of the results of the two parts was then conducted.

LABORATORY STUDIES IN COAL REFINING

A Thesis

Presented to

the Faculty of the Graduate School
Tennessee Technological University

by

Abdulkarim Smaili

In Partial Fulfillment

of the Requirements for the Degree

MASTER OF SCIENCE

Chemical Engineering

March 1983

CERTIFICATE OF APPROVAL OF THESIS

LABORATORY STUDIES IN COAL REFINING

by

Abdulkarim Smaili

Graduate Advisory Committee:

Clayton P. Kerr March 4, 1983
Chairman date

William D. Hallal March 4, 1983
Member date

William P. Bonner 3/3/83
Member date

Approved for the Faculty:

Marta Peters

Dean, Graduate School

March 4, 1983

Date