

ABSTRACT

The temperature history during adsorption, the rate of adsorption of water from denatured ethyl alcohol and methanol by molecular sieves type 3-A have been investigated. Fixed-bed breakthrough curves have been obtained for various flow rates at various water concentrations. Equilibrium data were evaluated at experimental temperature conditions.

The investigation was carried out in a four feet long and one and one half inch diameter pyrex column.

The experimental data have been processed to determine the number of reaction units and thus the overall rate coefficient. The mass transfer zone approach was applied to ethanol.

It was noted that the equilibrium constant did not change with temperature. The change in concentration of ethanol and methanol did not affect the mass transfer coefficient. The rate of transfer of reaction components in the microporous structure determines the overall rate.

TEMPERATURE STUDY IN AN
ADSORPTION COLUMN

A Thesis
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the Faculty of the Graduate School
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In Partial Fulfillment
of the Requirements for the Degree
MASTER OF SCIENCE
Chemical Engineering

by
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To the Faculty of the Graduate School:

I am submitting herewith a thesis written by Porus N. Dadabhoy, entitled, "Temperature Study in an Adsorption Column". I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Chemical Engineering.

Lloyd W. Crawford
Major Professor

We have read this thesis and
recommend its acceptance:

Albert H. Cooper

W.D. Hall

Accepted for the Faculty:

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Dean of the Graduate School