

SUMMARY

The object of this study was to develop a method for estimating critical temperatures using the "homomorph" concept (26). In this work the term "homomorph" refers to a hydrocarbon whose molecular geometry is similar to that of a nonhydrocarbon "parent."

A literature search was conducted to find experimental critical temperature data. The data were compiled and the data believed to be most accurate were selected. Experimental equations were selected, and the data were fitted to the experimental equations by multiple regression analysis to arrive at the constants. The following equation

$$T_{Cp} = T_{CH} \left[A + B \left(\frac{T_{bP}}{T_{bH}} \right) + C \left(\frac{T_{bP}}{T_{bH}} \right)^2 \right]$$

was found to give the best results.

This work demonstrates that critical temperature can successfully be estimated by employing the homomorph concept. It also suggest that good accuracy can be obtained in estimating critical temperatures of high molecular weight compounds and polyfunctional compounds.

APPLICATION OF THE HOMOMORPH CONCEPT IN ESTIMATING
CRITICAL TEMPERATURES

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CERTIFICATE OF APPROVAL OF THESIS

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