Computer Graphics

Comparison of Methods of Estimating VLE by Means of the Wilson, NRTL, UNIQUAC Equations for Ternary Systems
by Computer Graphics

Shin, Hyeon-Seop; Park, Jong Chul
Dept. of Chem. Engr., Kyunghee University

1. Introduction

The present work involves the computer simulation of the Wilson, NRTL, and UNIQUAC equations for ternary systems. The simulations were performed using a computer program developed for this purpose. The results obtained were compared with experimental data.

2. Computer Simulation

The computer program was used to simulate ternary systems of the type A-B-C, where A is ethanol, B is benzene, and C is cyclohexane. The simulations were carried out for different compositions of the ternary mixtures.

3. Results and Discussion

3.1 Parameters

The parameters used in the simulations were obtained from literature. For the Wilson equation, the aij parameters were taken from the literature. For the NRTL and UNIQUAC equations, the parameters were obtained from the literature and calculated using the corresponding equations.

4. Conclusion

The computer simulation results showed good agreement with the experimental data. The Wilson equation provided the best results, followed by the NRTL and UNIQUAC equations. The simulations demonstrated the potential of computer graphics in the field of thermodynamics.
3.2 Computer Graphics

![Diagram of computer graphics](image)

**Table 2**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter A</td>
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<td>1.0</td>
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<tr>
<td>Parameter B</td>
<td>2.0</td>
<td>3.0</td>
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</table>

**Table 3**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
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<tbody>
<tr>
<td>Parameter C</td>
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<td>5.0</td>
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<tr>
<td>Parameter D</td>
<td>6.0</td>
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</tbody>
</table>

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References


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4. The reference to computer graphics mentioned in TPTT may indicate the potential for the development of new three-dimensional visualization techniques for complex systems. With the advancement of graphical technology, the visualization of these complex systems can become more intuitive, allowing for a better understanding of the underlying physical processes. This can be particularly useful in fields such as chemistry, where the manipulation of data and the visualization of phase diagrams are crucial for research and development.

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**Figures 3 and 4**

![Figure 3: Phase Diagram for Ternary System](image)

**Figure 4: Three-Dimensional Visualization of TTT Equations**