Ph_5

VAPOR PRESSURE OF FLUORO COMPOUNDS AND CRITICAL LOCUS FOR BINARY SYSTEMS

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Vapor liquid equilibria data for the pure components of benzotrifluoride, O-fluorotoluene, hexafluoroacetylacetone, perfluoro-n-hexane and perfluoropropane were previously measured. The vapor liquid equilibrium data of five of the pure components are shown in Fig. (1).

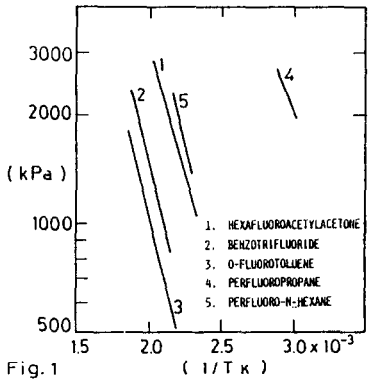

Fig. 1

The critical locus for the binary systems n-hexane + perfluoro-n-hexane and n-hexane + benzotrifluoride are shown in Figs. (2) and (3). It was found that the five components follow the well known equation:

$$\text{Log } (P/kPa) = A - \frac{B}{T/K}$$

The values of the constants are:

	A	B
Benzotrifluoride	6.5255	1676.553
Hexafluoroacetylacetone	6.3985	1437.817
Perfluoropropane	6.6515	1113.1585
O-Fluorotoluene	6.4025	1673.626
Perfluoro-n-hexane	7.153	1742.42

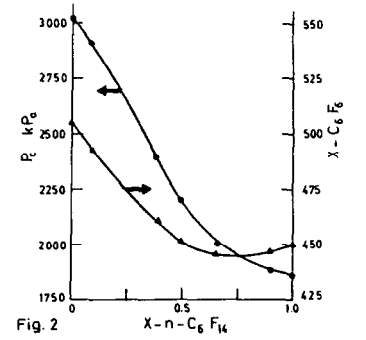

Fig. 2

In spite of the different molecules to which the fluorine atom was added to form the previous compounds, the vapor liquid equilibrium data always follow the simple equation:

$$\text{Log } (P) = A + \frac{B}{T}$$

with a very high accuracy up to the critical point. This accuracy is not found when we treat the vapor liquid equilibrium of hydrocarbons. More complicated equations will be needed to treat hydrocarbon data at high pressures and temperatures, especially as we approach the critical point.

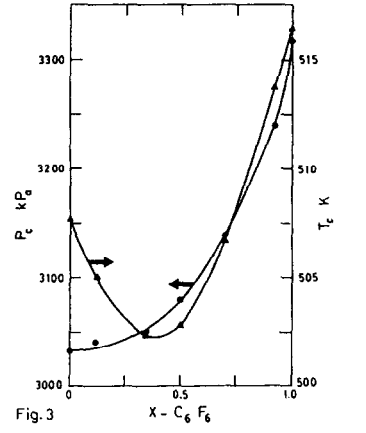

Fig. 3