APPENDIX C

List of Symbols

$A, B$ and $C$  Constants in the empirical equation for excess free energy.

$A_{ij}$  Number of contacts between the segments in Flory's theory.

$B_{ij}$  Virial coefficients of the components and the mixture.

$C$  Degrees of freedom.

$c$  Subscript for the critical properties.

$C_p$  Heat capacity at constant pressure (also configurational).

$C_v$  Heat capacity at constant volume (also configurational).

$E$  Energy.

$E$  Superscript for excess properties.

$g$  Molar free energy.

$h$  Molar enthalpy.

$k$  Boltzmann constant.

$l$  Probability in radial distribution function.

$m$  Superscript for properties of mixing.

$N$  Number of molecules.

$P$  Pressure.
\( p \) Reduced pressure.

\( p_i' \) Partial pressure.

\( Q \) Partition function.

\( R \) Gas constant.

\( r \) Distance between two molecules.

\( f \) Number of segments in Flory's theory.

\( \sigma \) Parameters in L. J. potential.

\( S_i \) The molecular surface area of contact per segment in Flory's theory.

\( s \) Molar entropy.

\( T \) Absolute temperature.

\( \tilde{T} \) Reduced temperature.

\( U \) Potential energy.

\( v \) Molar volume.

\( \tilde{v} \) Reduced volume.

\( \chi_{12} \) Interaction parameter in Flory's theory.

\( x_i \) Mole fraction of the component 'i' in liquid phase.

\( y_i \) The mole fraction of the component 'i' in gas phase.

\( Z \) Configurational partition function.

\( Z_{\text{comb}} \) Combinatorial factor.

\( \alpha \) Thermal expansion coefficient.

\( \beta \) Compressibility.

\( \gamma \) Thermal pressure coefficient.
\( \gamma \)  Activity coefficient of component 'i'.

\( \delta \)  Parameter used in Prigogine's average potential theory.

\( \delta_i \)  Solubility parameter.

\( \varepsilon_{ij}(r) \)  Interaction energy.

\( \varepsilon^* \)  Maximum depth of Lennard - Jones potential.

\( \eta \)  Constant characterising the energy of interaction.

\( \Theta \)  Parameter used in Prigogine's average potential theory.

\( \Theta_i \)  Site fraction in Flory's theory.

\( \lambda \)  Parameter characteristic of interaction potential.

\( \mu \)  Chemical potential.

\( \nu \)  Parameter characteristic of interaction potential.

\( \rho \)  Parameter used in Prigogine's average potential theory.

\( \phi \)  The universal potential energy function.

\( \phi_i \)  The volume fraction.

\( \phi_i \)  Segment fraction.