NOTATIONS

$B(r)$ = Blip function

$C(r)$ = Direct correlation function (DCF)

$C_o(r)$ = DCF of the reference system

$C_{HS}(r)$ = DCF of the hard sphere system

$C(r;\bar{\rho})$ = DCF at the average density $\bar{\rho}$

$\tilde{C}(k)$ = Fourier transform of DCF

$\tilde{B}(k)$ = Fourier transform of the blip function

C_1 = Pressure derivative of the isothermal compressibility

C_s = Sound velocity

C_p = Specific heat at constant pressure

D = Diffusion coefficient

G = Laplace transform of radial distribution function (RDF)

R = Universal gas constant

V = Molar volume

Z = Compressibility factor

d = WCA diameter

d_B = Diameter determined by Barker and Henderson criterion

e = exp = Exponential

f = Helmholtz free energy per particle

$g(r)$ = Radial distribution function (RDF), also called pair correlation function

$g_o(r)$ = RDF of the reference system

$g_d(r)$ = RDF of the hard sphere system

$g_d(d)$ = Hard sphere RDF evaluated at r slightly greater than d

$g_d^{PY}(\frac{r}{d_w}, \eta_w) = g_{WT}(\frac{r}{d_w}, \eta_w)$ = Hard sphere RDF derived by Wertheim and Thiele in the Percus and Yevick approximation

k = Wave vector

k_B = Boltzmann constant

p = Pressure

$Y_d(r)$ = Reduced pair correlation function of hard sphere system

α_T = Expansivity

β_T = Isothermal compressibility

β = Inverse temperature

γ = Friction coefficient

γ_2 = Specific heat ratio

δ = Temperature function introduced by Verlet and Weis

ϵ = Potential depth

η = Packing fraction

σ = Molecular diameter

ρ = Number density

$\Phi(r)$ = Intermolecular potential function

$\Phi_0(r)$ = Reference part of the potential function

$\Phi_1(r)$ = Attractive part of the potential function

$\mu_{\perp}$ = Shear viscosity coefficient of liquids

τ = Surface tension of liquids.