

Constants for the Van der Waals and Redlich-Kwong Equations

	Van der Waals		Redlich-Kwong	
	a $\left[\text{atm} \left(\frac{\text{cm}^3}{\text{gmol}} \right)^2 \right]$	b $\left(\frac{\text{cm}^3}{\text{gmol}} \right)$	a $\left[(\text{atm})(\text{K}^{1/2}) \left(\frac{\text{cm}^3}{\text{gmol}} \right)^2 \right]$	b $\left(\frac{\text{cm}^3}{\text{gmol}} \right)$
Air	1.33×10^6	36.6	15.65×10^6	25.3
Ammonia	4.19×10^6	37.3	85.00×10^6	25.7
Carbon Dioxide	3.60×10^6	42.8	63.81×10^6	29.7
Ethane	5.50×10^6	65.1	97.42×10^6	45.1
Ethylene	4.48×10^6	57.2	76.92×10^6	39.9
Hydrogen	0.25×10^6	26.6	1.439×10^6	18.5
Methane	2.25×10^6	42.8	31.59×10^6	29.6
Nitrogen	1.35×10^6	38.6	15.34×10^6	26.8
Oxygen	1.36×10^6	31.9	17.12×10^6	22.1
Propane	9.24×10^6	90.7	180.5×10^6	62.7
Water Vapor	5.48×10^6	30.6	140.9×10^6	21.1

Values of Pitzer Accentric Factor (ω)

Compound	Accentric Factor	Compound	Accentric Factor
Acetone	0.309	Hydrogen Sulfide	0.100
Benzene	0.212	Methane	0.008
Ammonia	0.250	Methanol	0.559
Argon	0.000	n-Butane	0.193
Carbon Dioxide	0.225	n-Pentane	0.251
Carbon Monoxide	0.049	Nitric Oxide	0.607
Chlorine	0.073	Nitrogen	0.040
Ethane	0.098	Oxygen	0.021
Ethanol	0.635	Propane	0.152
Ethylene	0.085	Propylene	0.148
Freon-12	0.176	Sulfur Dioxide	0.251
Hydrogen	-0.220	Water Vapor	0.344