

Abstract

1 Other thermodynamics quantities

There is nothing special about G and G/W_1 . Other thermodynamic quantities yield similar equations. Taking volume V as an example, we have for a binary solution $V = n_1v_1 + n_2v_2$ and the corresponding Gibbs-Duhem equation at constant T and p , $n_1dv_1 + n_2dv_2 = 0$; v_1 and v_2 are the partial molar volumes. We have, at constant T and p ,

$$d(V/W_1) = v_2dm_2 \quad (1)$$

Thus the partial molar volume of the solute may be obtained as the slope of a graph of V/W_1 with respect to m_2 at constant temperature.