



W4-1-6 Internal energy and enthalpy 6

Consider the total differential: $dh = \left(\frac{\partial h}{\partial s}\right)_p ds + \left(\frac{\partial h}{\partial P}\right)_s dP$. What variable is represented by $\left(\frac{\partial h}{\partial P}\right)_s$?

From $dh = du + d(Pv) = Tds - Pdv + Pdv + vdP = Tds + vdP$ and $dh = \left(\frac{\partial h}{\partial s}\right)_p ds + \left(\frac{\partial h}{\partial P}\right)_s dP$ it can be seen that:

$$\left(\frac{\partial h}{\partial P}\right)_s = v$$