

## W4-1-6 Internal energy and enthalpy

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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:

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