

## 4-3-4 Gibbs energy 4

Consider the total differential  $dg = \left(\frac{\partial g}{\partial T}\right)_P dT + \left(\frac{\partial g}{\partial P}\right)_T dP$ . What variable is represented by  $\left(\frac{\partial g}{\partial T}\right)_P$  ?

From  $dg = \left(\frac{\partial g}{\partial T}\right)_P dT + \left(\frac{\partial g}{\partial P}\right)_T dP$  and  $dg = dh - d(Ts) = Tds + v dP - Tds - s dT = v dP - s dT$  it can be seen that:

$$\left(\frac{\partial g}{\partial T}\right)_P = -s$$