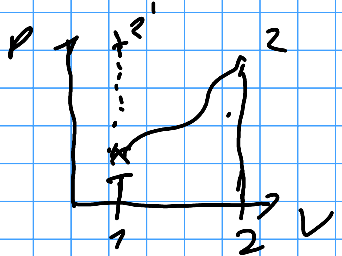
$u = u(T, v)$ $\qquad\qquad$ $h = h(T, p)$

$du = c_v\,dT + \left(\frac{\partial u}{\partial v}\right)_T dv$ $\qquad\qquad$ $dh = c_p\,dT + \left(\frac{\partial h}{\partial p}\right)_T dp$

Auswertung des Versuchs:



$$dU = \underset{\to 0}{dQ} + \underset{\substack{\to 0 \\ -p\,dV}}{dW_V} = 0 \text{ (reversibel)}$$

$$du = \underset{\substack{\to 0 \\ \text{Beobachtung}}}{c_v\,dT} + \left(\frac{\partial u}{\partial v}\right)_T dv = 0 \Rightarrow \left(\frac{\partial u}{\partial v}\right)_T = 0$$

u hängt <u>nicht</u> von v ab!

$$\left.\begin{aligned} u &= u(T) \\ du &= c_v(T)\,dT \end{aligned}\right\} \text{ideales Gas}$$

vgl.: $Q_{12'} = m\, \bar{c}_v \Big|_{T_1}^{T_2'} (T_2' - T_1)$

$v = \text{const}$

$$u_2 - u_1 = \int_{T_1}^{T_2} c_v(T)\,dT = (T_2 - T_1) \cdot \bar{c}_v \Big|_{T_1}^{T_2}$$

$U_2 - U_1 = m \cdot \bar{c}_v \Big|_{T_1}^{T_2} (T_2 - T_1)$ $\rightarrow$ kalorische Zustandsgl. des idealen Gases

$$h = u + pv = u + R_i T \qquad p \cdot V = m R_i T \qquad R_i = \frac{R}{M}$$

$$= h(T)$$

$$\rightarrow c_p = c_p(T)$$

$$h_2 - h_1 = \int_1^2 c_p(T)\,dT = (T_2 - T_1) \cdot \overline{c_p}\Big|_{T_1}^{T_2}$$

$$dh = c_p(T)\,dT$$