



W4-10-1 Inclines in diagrams 1

The quantities on the axes of a thermodynamic diagram are taken from the collection P, T, v, s, u, h, a and g .

In which diagram is the incline of the isotherm determined by pressure alone?

For an isotherm, the temperature T is constant. The isotherm must be a function of only the pressure $P \rightarrow \left(\frac{\partial y}{\partial x}\right)_T = f(P)$. This can be found in the diagram with the Helmholtz energy, a on the y -axis and the volume v on the x -axis ($a - v$ diagram) $\rightarrow \left(\frac{\partial a}{\partial v}\right)_T = -P$.