

Consider a Ps-diagram with the pressure, P, on the vertical axis and the entropy, s, on the horizontal axis.

What is the expression describing the slope of an isotherm in a Ps-diagram?

Isotherm means temperature is constant, thus $\left(\frac{\partial P}{\partial s}\right)_P$ is not correct. Ps-diagram

means pressure and entropy must be in the differential equation, thus $\left(\frac{\partial T}{\partial P}\right)_T$ is also not correct. Pressure is on the vertical axis and entropy on the horizontal axis, thus the correct differential equation becomes: $\left(\frac{\partial P}{\partial s}\right)_T$.