

[tex125] Dry ice

The T -dependence of the vapor pressure of CO_2 below the triple point ($T_t = -56.6^\circ\text{C}$) is well represented by the empirical relation

$$\ln\left(\frac{p(T)_{\text{coex}}}{1\text{atm}}\right) = 16 - \frac{3116\text{K}}{T}.$$

The molar heat of melting is $L_{sl} = 8330\text{J}$ with negligible T -dependence.

- (a) Find the pressure p_t at the triple point.
- (b) Find the latent heat of sublimation, L_{sg} , and the latent heat of vaporization, L_{lg} .
- (c) Find the vapor pressure $p(T)_{\text{coex}}$ at 20°C .

Solution: