

Question #72858, Chemistry / General Chemistry

$$\ln P = \frac{-\Delta H_{vap}}{RT} + C$$

If $P = 100 \text{ mmHg} = 13332 \text{ Pa}$, $T = 305,5 \text{ K}$, $\Delta H = 38,6 \text{ kJ/mol} = 38600 \text{ J/mol}$ then:

$$C = \ln(13332) + 38600 / 8,314 * 305,5 = 24,7$$

When $T = 332,3 \text{ K}$ then:

$$\ln P = \frac{-38600}{8,314 * 332,5} + 24,7 = 10,74$$

$$P = 46116 \text{ Pa} = 346 \text{ mmHg}$$