7.5 b)

1120 K

$\Delta H_R^\ominus = 125\ kJ/mol$ 800 → 1500 K

$\Delta G^\ominus = 22\ kJ/mol$ → 1120 K

$$\ln K_2 - \ln K_1 = \frac{-1}{R} \int_{1/T_1}^{1/T_2} \Delta H_R^\ominus \, d(1/T)$$

$$\ln K_2 - \ln K_1 = \frac{-\Delta H^\ominus}{R} \left(\frac{1}{T_2} - \frac{1}{T_1} \right)$$

$$\ln K(1120) = \frac{\Delta G^\ominus}{RT} = \frac{-22.10^3}{8,314.1120} = -2,363$$

$$K = e^{-2,363} = 9,41.10^{-2}$$

$$\ln K_2 = \ln K_1 - \frac{\Delta_r H^\ominus}{R}\left(\frac{1}{T_2} - \frac{1}{T_1}\right)$$

Se $K_2 \cong 1$ $\ln K_2 = 0$

$$\frac{1}{T_2} = \frac{R \ln K_1}{\Delta_r H^\ominus} = \frac{8,314 . (-2,363)}{(125 . 10^3)} + \frac{1}{1120} = 7,36 . 10^{-4}$$

$$T_2 = 1,4 . 10^3 \text{ Kelvin}$$