

Rozpustnost kyslíku ve vodě je 14,74 mg/l při 0 °C a 7,03 mg/l při 35 °C. Odhadněte rozpustnost při 50 °C.

CLAUSIUS-CLAPEYRONOVA ROVNICE:

$$\log \frac{c_2}{c_1} = \frac{\Delta H}{2.303R} \left[\frac{1}{T_1} - \frac{1}{T_2} \right]$$

$$\frac{\Delta H}{2.303R} = -773 \text{ K}$$

○ $T_1 = 0^\circ \text{C} = 273 \text{ K}$

$c_1 = 14.74 \text{ mg/L}$

○ $T_2 = 35^\circ \text{C} = 308 \text{ K}$

$c_2 = 7.03 \text{ mg/L}$

$T = 50^\circ \text{C} = 323 \text{ K}$

$$\frac{\Delta H}{2.303R} = \left(\log \frac{c_2}{c_1} \right) \frac{1}{\left[\frac{1}{T_1} - \frac{1}{T_2} \right]} = \left(\log \frac{7.03}{14.74} \right) \frac{1}{\left[\frac{1}{273} - \frac{1}{308} \right]}$$

$$\log \frac{C_2}{C_1} \approx \frac{\Delta H}{2.303R} \left[\frac{1}{T_1} - \frac{1}{T_2} \right]$$

$$\log \frac{C_2}{C_1} = -773 \cdot \left[\frac{1}{273} - \frac{1}{323} \right] = -0.43801$$

$$\log C_2 - \log C_1 = -0.43801$$

$$\log C_2 = \log C_1 - 0.43801$$

$$\log C_2 = \log 14.74 - 0.43801$$

$$\log C_2 = 0.73049$$