

② $n_{H_2O} = \frac{805 \text{ ug mal}}{18 \text{ g}} = 44'72 \text{ mmol}$

$V = \bar{V} r^2 h = 6'283 \text{ L}$

$n_{\text{met}} = \frac{1010 \text{ ug mal}}{32 \text{ g}} = 31'5625 \text{ mmol}$

$T_v = 337'7$

$T = 40^\circ \text{C}$

$p_{H_2O} = p \cdot e$

$-\frac{dH}{2} \left[\frac{1}{T} - \frac{1}{T_0} \right]$

$= 101'3 \cdot e$

$-\frac{2260 \cdot 18 \text{ kJ mol}^{-1}}{8 \text{ mol} \cdot 8314 \text{ J K}^{-1} \text{ mol}^{-1}} \left[\frac{1}{373} - \frac{1}{378} \right]$

$= 8'19 \text{ kPa}$

$p = \frac{nRT}{V} = 18'526$

$n = \frac{pV}{RT} = 19'77 \text{ mmol}$

$p = 13'07 \text{ kPa}$

metanol $p = 35'41 \text{ kPa}$

$T = 65^\circ \text{C}$

$n_{H_2O} p = 26'04 \text{ kPa}$

$p = 20'00 \text{ kPa}$

metanol $p = 102'5 \text{ kPa}$

$p = 14'11 \text{ kPa}$

$T = 65^\circ$

vse v plinoviti fazi

$p = 34'11 \text{ kPa}$

$T = 40^\circ \text{C}$

metanol v plinoviti fazi

336g vode v plinoviti, 449g v tekoči fazi

$p = 21'26 \text{ kPa}$

③ a) $\Delta H_t = \frac{Q}{m} = \frac{C \cdot \Delta T}{m} = \frac{(m_{Cu} C_{pCu} + m_{H_2O} C_{pH_2O} + C) \Delta T}{m}$

$m_{H_2O} = 500 \text{ ml} \cdot \frac{0'998 \text{ g}}{\text{ml}} = 0'499 \text{ kg}$

$\Delta H_t = \frac{(0'3 \text{ kg} \cdot 390 \text{ J kg}^{-1} \text{ K}^{-1} + 0'499 \text{ kg} \cdot 4181'8 \text{ J kg}^{-1} \text{ K}^{-1} + 531'5 \text{ J K}^{-1}) \Delta T}{7'5983 \text{ g}}$

b) $C = \left(\frac{dQ}{dT} \right)$

$\Delta H_t = 410 \frac{\text{J}}{\text{g}}$

Toplota potrebna, da segrejemo sistem za 1K.
nastalo

① $C_{Cu^{2+}} = 0'018 \text{ M}$
 $C_{Ce^{-}} = 0'037 \text{ M}$
 $C_{H^+} = 0'001 \text{ M}$

a) $E_H = \frac{RT}{F} \ln a_{H^+} = -0'177 \text{ V}$

$E_{Cu} = E_{Cu}^0 + \frac{RT}{2F} \ln a_{Cu^{2+}} = 0'287 \text{ V}$

$E_{Ag/AgCl} = E_{Ag/AgCl}^0 - \frac{RT}{F} \ln a_{Cl^{-}} = 0'307 \text{ V}$

$E_{\text{cena,H}} = E_{Cu} - E_H = 0'464 \text{ V}$

$E_{\text{redox}} = E_{Ag/AgCl} - E_H = 0'484 \text{ V}$

b) $R_N = R_2 \left(\frac{R_x}{R_x'} - 1 \right)$ $R_x' = 0'75 R_x$

$R_N = 22,5 \text{ k}\Omega \left(\frac{1}{3} \right) = 7'5 \text{ k}\Omega$

$dR_x = dR_x'$

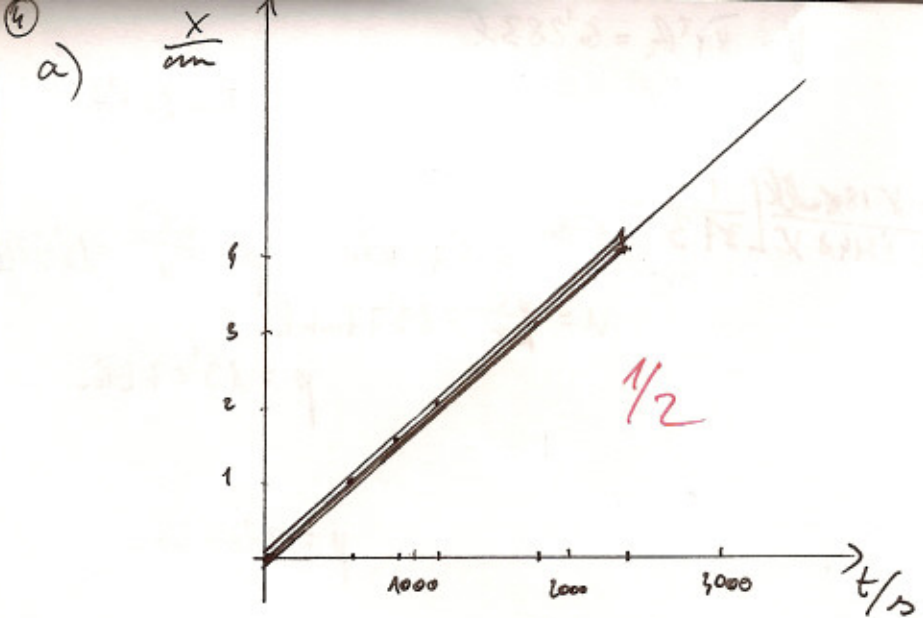
$\frac{dR_N}{R_N} = \frac{dR_2}{R_2} + \frac{dR_x'}{R_x'} + \frac{dR_x + dR_x'}{R_x - R_x'}$

$\frac{dR_x}{R_x} = 0'005$

$\frac{dR_N}{R_N} = \frac{0'1}{22'5} + \frac{0'005}{0'75} + \frac{2 \cdot 0'005}{0'25} = 0'05$

c) $pH = -\log_{10} [H^+] = 3$
nepineno bazi acetatni

kor ne poznamo E_S^0 in E_{red}
 $E = E_S^0 - \frac{RT}{F} pH + E_{red} - E_{red}$



$$k = \frac{4.1 - 0}{2420 - 0} = 1.694 \cdot 10^{-3} \frac{\text{cm}}{\text{s}} \quad 1/4$$

$$t_+ = \frac{C \cdot F \cdot V}{I \cdot t} = \frac{C \cdot F \cdot S \cdot x}{I \cdot t}$$

$$t_+ = \frac{C \cdot F \cdot S}{I} \cdot k = \frac{0.1 \text{ mol} \cdot 96487 \text{ As} \cdot \pi \cdot 0.4^2 \text{ cm}^2 \cdot 1.694 \cdot 10^{-3}}{0.01 \text{ A} \cdot 10^3} = 0.822 \quad 1/2$$

$$\frac{dt_+}{t_+} = \frac{dc}{c} + 2 \cdot \frac{dd}{d} + \frac{dk}{k} + \frac{dI}{I} = \frac{0.0002}{0.1000} + 2 \cdot \frac{0.001}{0.8} + \frac{0.083}{1.694} + 0.015 = 0.09099 \approx 0.09$$

$$t_+ = 0.822 \quad 1/2$$

$$t_- = 0.178 \quad 1/2$$

$$dt_+ = 0.074799 \approx 0.07 \quad 1/4$$

$$k_1 = \frac{4 - 0.1}{2420 - 0} = 1.611 \cdot 10^{-3} \frac{\text{cm}}{\text{s}}$$

$$\Delta k = \text{MAX}(0.083 \cdot 10^{-3}, 0.083 \cdot 10^{-3})$$

$$\Delta k = 0.083 \cdot 10^{-3} \frac{\text{cm}}{\text{s}}$$

$$k_2 = \frac{4.2 + 0.1}{2420 - 0} = 1.777 \cdot 10^{-3} \frac{\text{cm}}{\text{s}}$$

$$t_+ = 0.82 \pm 0.07 = 0.82 (1 \pm 0.09) \quad 1/4$$

$$t_- = 0.18 \pm 0.07 = 0.18 (1 \pm 0.4) \quad 1/4$$

b)
$$u^+ = \frac{X \cdot V}{I \cdot t} = \frac{X \cdot S \cdot k}{I} = \frac{0.0391 \Omega^{-1} \cdot \text{cm} \cdot \pi \cdot 0.4^2 \text{ cm}^2 \cdot 1.694 \cdot 10^{-3}}{1 \cdot 0.01 \text{ A}} =$$

$$X = \frac{\rho}{R S} = \frac{0.2 \text{ cm}}{0.25 \text{ cm}^2 \cdot 20.44 \Omega} = 0.0391 \Omega^{-1} \text{ cm}^{-1} \quad 1/4 = 3.333 \cdot 10^3 \text{ cm}^2 \text{ s}^{-1} \text{ V}^{-1} \quad 1/4$$