

$$1) \frac{A_p}{I_A} = \frac{r_A^{\circ} - Pror}{r_A^{\circ}} = \frac{\frac{M_{H_2}}{M_A}}{\frac{M_{H_2}}{M_A} + \frac{M_A}{M_A}} \rightarrow \frac{55,3 - 53,3}{55,3} = \frac{3,17}{\frac{3,17}{x} + \frac{20}{18,02}}$$

$$x = M_{H_2} = 76,12 \text{ g/mol}, \quad n_{CO_2} = n_C = \frac{5,50 \text{ g}}{44,01 \text{ g/mol}} = 0,125 \text{ mol}; \quad n_{H_2O} = \frac{1}{2} n_C = \frac{3 \text{ g}}{18,02 \text{ g/mol}} = 0,166 \text{ mol};$$

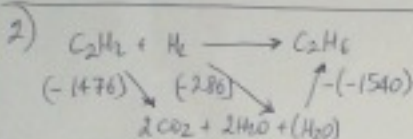
$$n_{H_4} = 0,166 \times 2 = 0,333 \text{ mol}; \quad M_{C_3H_8O_2} = \frac{3,17 \text{ g}}{0,0416 \text{ mol}} = 76,12 \text{ g/mol}$$

$$C_xH_yO_z: \quad x : y : z = 1 : \frac{3}{0,333} : \frac{8}{0,333} = 1 : 9 : 24$$

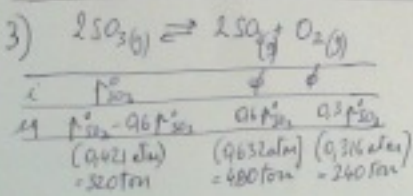
$$m_0 = M - (M_C + M_H) = 76,12 - (3 \cdot 12,01 + 8 \cdot 1,008) = 32,0 \text{ g}$$

$$z = \frac{M_O}{M_0} = \frac{32 \text{ g}}{16 \text{ g/mol}} = 2 \text{ mol} \rightarrow C_3H_8O_2$$

MOLECOLARE:  
MINIMA



$$x = \Delta H_f^{\circ} = -1476 - 286 + 1540 = -222 \text{ kJ}$$

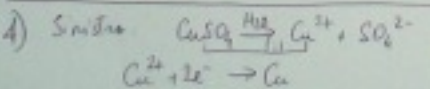


$$P_{SO_3}^{\circ} = \left(\frac{800}{760}\right) \text{ atm} = 1,053 \text{ atm}$$

$$P_{SO_2} = 0,4 P_{SO_3}^{\circ} = 0,421 \text{ atm}$$

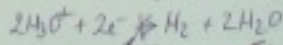
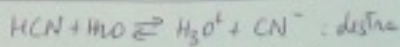
$$P_{O_2} = 0,6 P_{SO_3}^{\circ} = 0,632 \text{ atm}; \quad P_{O_2} = 0,316 \text{ atm}$$

$$K_P^{\circ} = \frac{P_{SO_2}^2 \cdot P_{O_2}}{P_{SO_3}^2} = \frac{(0,421)^2 \cdot (0,316)}{(1,053)^2} = 0,127$$



$$E = 0,34 + \frac{0,0592}{2} \log(0,1) = 0,310 \text{ V} \oplus$$

$$\Delta E = E_{SO_4} - E_{Cu} = 0,310 - (-0,285) = 0,595 \text{ V} \approx 0,60 \text{ V}$$



$$E = 0 + \frac{0,0592}{2} \log \frac{(1,85 \cdot 10^{-5})^2}{1} = -0,285 \text{ V}$$

$$K = 4,9 \cdot 10^{-10} \ll 10^{-7} \rightarrow [H_3O^+]^2 - K_w - CK_a = 0$$

$$[H_3O^+] = \sqrt{K_w + CK_a} \approx 1,565 \cdot 10^{-5} \text{ M}$$