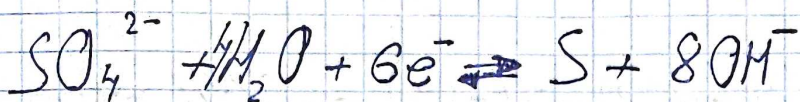


Самостоятельное ОРР?

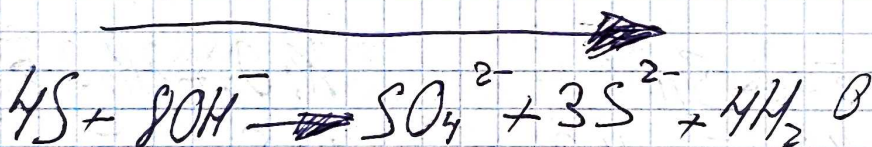
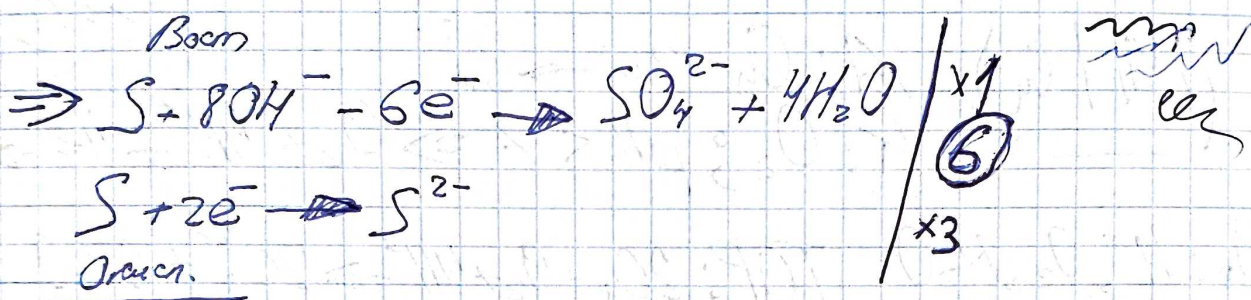


$$\left. \begin{aligned} \varphi_{\text{SO}_4^{2-}/\text{S}}^\circ &= -0.75\text{В} \\ \varphi_{\text{S}/\text{S}^{2-}}^\circ &= -0.48\text{В} \end{aligned} \right\} \Rightarrow$$

$$\Delta_2 G_{298}^\circ < 0 \quad \text{m.e. } E > 0$$

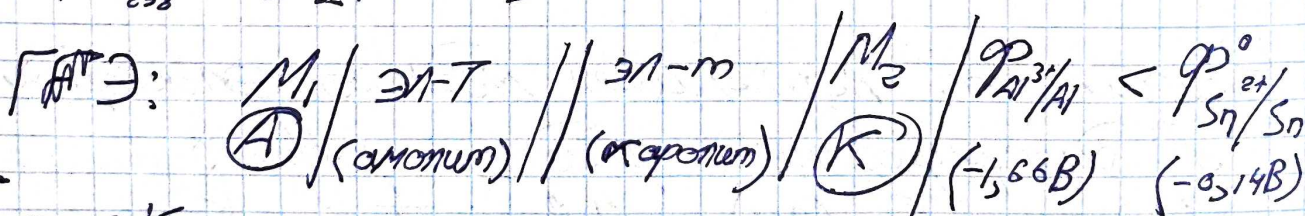
$$\varphi_{\text{S}/\text{S}^{2-}}^\circ > \varphi_{\text{SO}_4/\text{S}}^\circ$$

$$E^\circ = \underbrace{\varphi_{\text{ox/red}}^\circ}_{\text{ок-м}} - \underbrace{\varphi_{\text{ox/red}}^\circ}_{\text{восм}} \quad \text{S-ox} \quad \text{S-восм.}$$

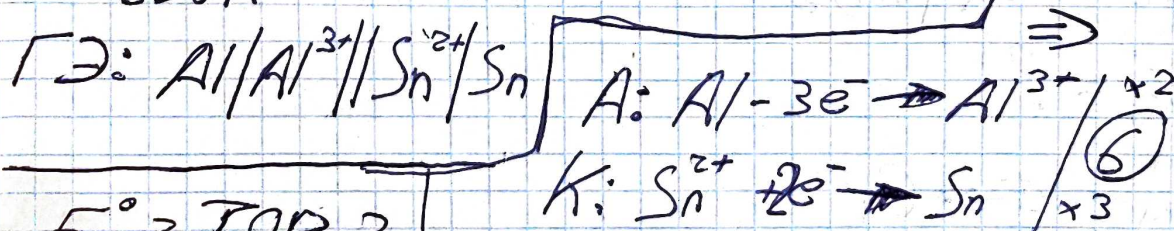


$$E^\circ = -0.48 - (-0.75) = 0.27\text{В} > 0 (\rightarrow)$$

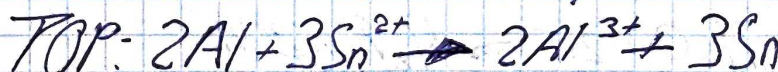
$$\Delta_1 G_{298}^\circ = -E^\circ ZF = -0.27 \cdot 6 \cdot 96500 = < 0 \quad (\text{Процесс самопроизвольный})$$



$$T = 298\text{К}$$



$$E^\circ? \text{ТОР}=?$$

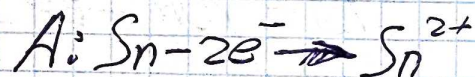
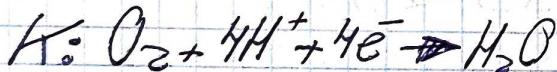
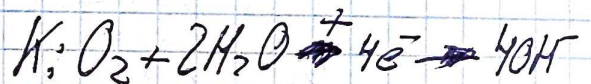
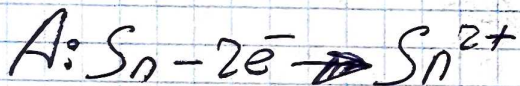
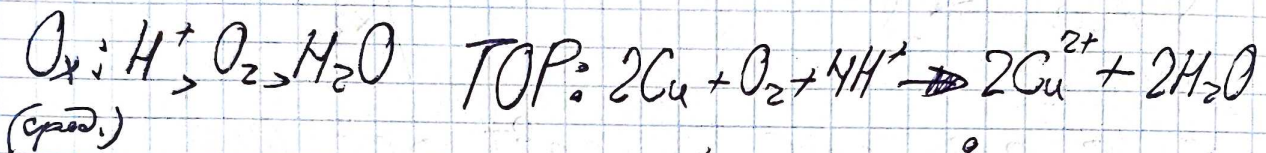
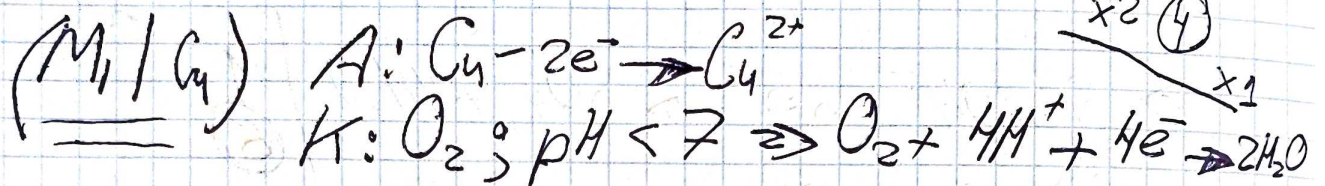


$$\Delta_2 G_{298}^\circ = \sum_j (\nu_{\text{of}} G_{298,j}^\circ) - \sum_i (\nu_{\text{of}} G_{298,i}^\circ) =$$

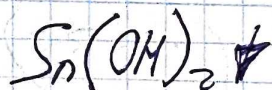
$$\Delta_r G_{298}^\circ = 2\Delta_f G_{298}^\circ(\text{Al}^{3+}) + 3\Delta_f G_{298}^\circ(\text{Sn}) - 2\Delta_f G_{298}^\circ(\text{Al}) - 3\Delta_f G_{298}^\circ(\text{Sn}^{2+}) = 2(-492) - 3(-80) = -744 \text{ кДж}$$

$$E^\circ = \frac{\Delta_r G_{298}^\circ}{ZF} = \frac{-744}{6 \cdot 96500} \approx 1,21$$

Рассчитать
Возможность коррозии луженой меди в аэриро-
ванной эл-е с pH=6. и указ. прод. реакции.



TOP:

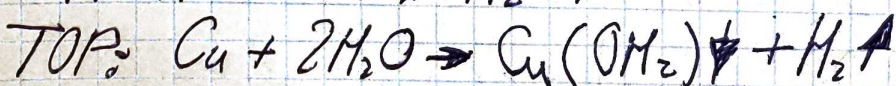
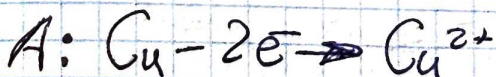


приод Sn²⁺

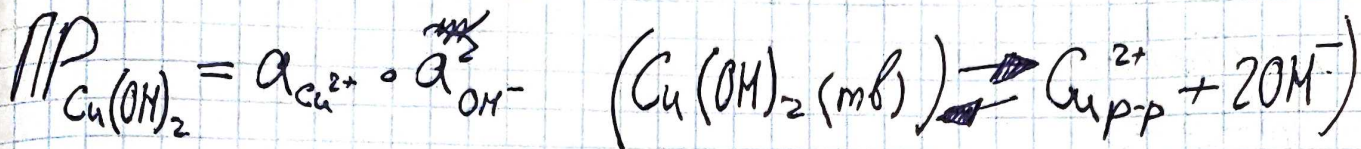
Рассчитать потенциал медного электрода
в деаэрированной среде pH=10

Продукт Cu(OH)₂ H₂ ↑ T=298 K

$$\varphi_{\text{Cu}^{2+}/\text{Cu}} = ?$$



$$\varphi_{\text{Cu}^{2+}/\text{Cu}} = \varphi_{\text{Cu}^{2+}/\text{Cu}}^{\circ} + \frac{0,059}{2} \lg \tilde{a}_{\text{Cu}^{2+}} = \{$$



$$\text{pH} + \text{pOH} = 14; \text{pOH} = 14 - 10 = 4$$

$$\text{pOH} = -\lg a_{\text{OH}^-}$$

$$a_{\text{OH}^-} = 10^{\text{pH}} \cdot 10^{-4}$$

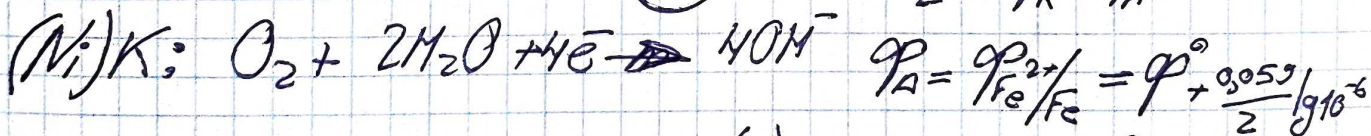
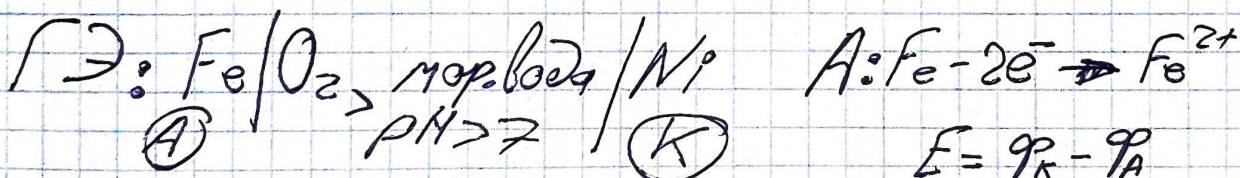
$$\xi = 0,34 + \frac{0,059}{2} \lg (6 \cdot 10^{-12}) = -0,08 \text{ В}$$

~~смаз~~ H_2 смаз (Fe) порр ~~Ні~~

$$\varphi_{\text{Ni}^{2+}/\text{Ni}} = -0,26 \text{ В} \quad \text{морская вода } \text{pH} \approx 8; a_{\text{Ni}^{2+}} = 10^{-6}$$

$$E = ?$$

$$\varphi_{\text{Fe}^{2+}/\text{Fe}}^{\circ} = -0,44 \text{ В} < \varphi_{\text{Ni}^{2+}/\text{Ni}}^{\circ} = -0,26 \text{ В}$$



ТОР:

$$\rightarrow 2\text{Fe}(\text{OH})_2 \quad = -0,017 \text{ В}$$

$$\varphi_K = \varphi_{\text{O}_2/\text{H}_2\text{O}/\text{OH}^-} = 1,23 -$$

$$0,059 \text{ pH} =$$

~~А: 2Fe~~

$$m = k y t \eta$$

~~А~~

$$k_{\text{Me}} = \frac{M}{z \cdot F}$$

$$k_{\text{заг}} = \frac{V_{\text{заг}}}{F} = 0,247 \text{ В}$$

$$V = \frac{22,4}{z}$$

При электролизе водного раствора

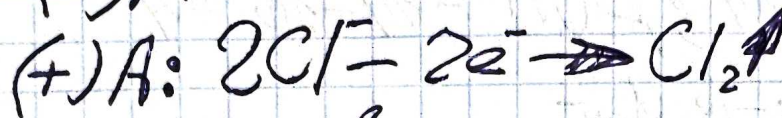
$$t = 10 \text{ мин} \quad T = 298 \text{ К} \quad \text{MCl}_2 = \text{Me}^{2+} + 2\text{Cl}^-;$$

$$m(\text{Me}) = 0,98 \text{ г}$$

ур-я - ?

$$\text{Me} = ?$$

$$V_{\text{газа}} = ? \quad (-)\text{К}: \text{Me}^{2+} + 2\text{e}^- \rightarrow \text{Me}^0$$



$$V_{\text{газа}} = \frac{V_{\text{гв}}(\text{Cl}_2)}{2} \text{ гт}; V_{\text{Cl}_2} = \frac{22,4}{2} = 11,2 \text{ л/моль}$$

$$m(\text{Me}) = \frac{M}{zF} \cdot It = \frac{M}{F} \cdot It \Rightarrow M = m(\text{Me})!!$$

$$\text{Me} = ? \quad M(\text{Me}) = M_{\text{э}} \cdot z = M$$

(1,23)

$$\eta_{\text{э}}(\text{Me}) = \eta_{\text{э}}(\text{газа})$$

$$V_{\text{г}} = \eta_{\text{э}} \cdot V_{\text{г}}$$