

无机化学 II

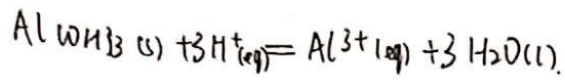
贾长鑫

2018110038

工程 1802

## 1. Traitement de la bauxite

1.

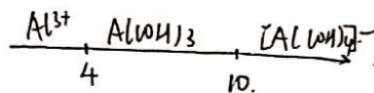


2. 1-  $\text{Al}^{3+}$  ...

2-  $\text{Al(OH)}_3(s)$

3-  $[\text{Al(OH)}_4]^-$

4-  $\text{Al}(s)$



$\text{pH} \leq 4$ :  $\text{Al}(s)$ ,  $\text{Al}^{3+}$  prédominance,  $\text{Al(OH)}_3$ ,  $[\text{Al(OH)}_4]^-$  existence

$4 < \text{pH} \leq 10$ :  $\text{Al}(s)$ ,  $\text{Al(OH)}_3$  prédominance,  $\text{Al}^{3+}$ ,  $[\text{Al(OH)}_4]^-$  existence

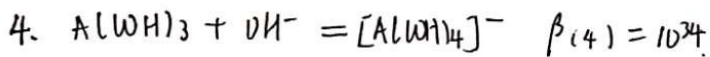
$\text{pH} > 10$ :  $[\text{Al(OH)}_4]^-$ ,  $\text{Al}$  prédominance,  $\text{Al}^{3+}$ ,  $\text{Al(OH)}_3$  existence

3.  $\text{pH} = -\log[\text{H}^+] = 4$

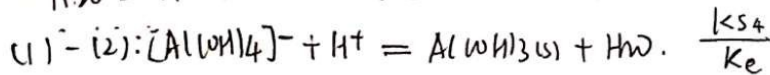
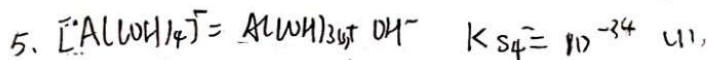
$$[\text{H}^+] = 10^{-4}$$

$$\text{donc } [\text{OH}^-] = 10^{-10}$$

$$K_{s4} = [\text{Al}^{3+}][\text{OH}^-]^3 = 10^{-2} \times 10^{-10 \times 3} = 10^{-32}$$



$$[\text{Al(OH)}_4]^- = \text{Al(OH)}_3 + \text{OH}^- \quad K_{s4} = \frac{1}{\beta(4)} = 10^{-34}$$



$$\left( \frac{K_{s4}}{K_e} = \frac{1}{[\text{Al(OH)}_4]^- [\text{H}^+]} \right)$$

$$\text{donc } \text{pH} = 10$$

6. La valeur de pente de  $1/4$  est nulle

~~A(4, -1.71)~~

La valeur de pente de  $2/4$  : comme  $F_{\text{FeOH}}/K_0 : -0.18$

$$\frac{-1.71 - y_B}{4 - 10} = -0.18$$

$$y_B = -2.79$$

donc B(10, -2.79)

7. pour accélérer le ~~réaction~~ processus de réaction et favoriser la réaction.

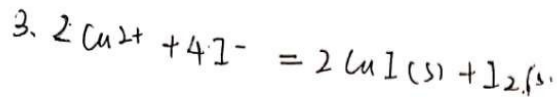
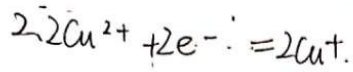
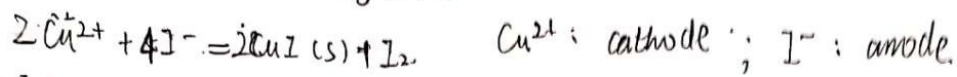
8. c'est ~~une base~~ ~~calculation~~ basique.

7. La bauxite contient de fer pour favoriser la réaction.

10.

2. 2.1

1. elle paraît ~~est~~ envisageable



$$4. E^*(\text{Cu}^{2+}/\text{CuI}) \neq E(\text{I}_2/\text{I}^-)$$

$$E^*(\text{Cu}^{2+}/\text{CuI}) + \frac{0.06}{2} \log [\text{Cu}^{2+}]^2 = E^*(\text{I}_2/\text{I}^-) + \frac{0.06}{2} \log \frac{1}{[\text{I}^-]^4}$$

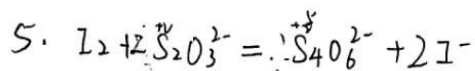
$$2E^*(\text{Cu}^{2+}/\text{CuI}) - 2E^*(\text{I}_2/\text{I}^-) = \frac{0.06}{2} \log \frac{1}{[\text{Cu}^{2+}]^2 [\text{I}^-]^4}$$

$$\text{Or } k_0 = \frac{1}{[\text{Cu}^{2+}]^2 [\text{I}^-]^4}$$

$$2 \times 0.89 - 2 \times 0.62 = 0.06 \log k_0$$

$$9 = \log k_0$$

$$\text{donc } k_0 = 10^9$$

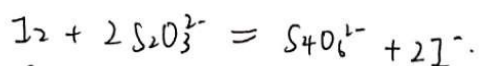
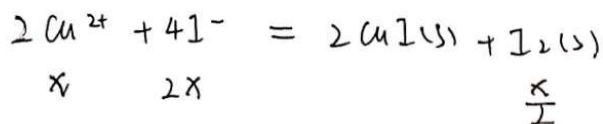


Non.

2.2.

$$6. n_{\text{I}^-} = 50 \times 10^{-3} \text{ L} \times 2 \times 10^{-4} \text{ mol} \cdot \text{L}^{-1} = 0.01 \text{ mol}$$

$$\text{Soit } n_{\text{Cu}^{2+}} = x.$$



$$\begin{array}{ccc} \frac{x}{2} & & x \end{array}$$

$$n_{\text{S}_2\text{O}_3^{2-}} = 0.1 \text{ mol} \cdot \text{L}^{-1} \times 18 \times 10^{-3} \text{ L} = 0.0018 \text{ mol}$$

donc  $x = 0.0018 \text{ mol}$

$$c_{\text{cur}} = \frac{x}{10 \times 10^{-3}} = 0.09 \text{ mol} \cdot \text{L}^{-1}$$

7.  $2x = 0.0036 \text{ mol} < 0.01 \text{ mol}$ ,

et il y a 18 ml de thiosulfate.

donc le système est bien en excès d'ions iodure.

8. Quand le couleur de jaune ver bleu, et on fini le tirage.