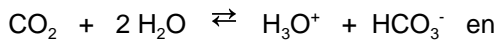


Biobrandstofcel

1 Uit de diagrammen valt af te lezen hoe groot de concentratieveranderingen zijn van het glucose en de Fe^{2+} - ionen (in mmol L^{-1}) na 150 uur :

- afname glucose : $1,03 - 0,59 = 0,44 \text{ mmol L}^{-1}$
- toename Fe^{2+} : $12,6 - 2,0 = 10,6 \text{ mmol L}^{-1}$
- er reageert $0,44 \text{ mmol}$ glucose met $10,6 \text{ mmol Fe}^{3+}$
 dus $1,0 \text{ mol}$ glucose reageert met $(10,6 / 0,44) = 24 \text{ mol Fe}^{3+}$
 1 Fe^{3+} ion neemt één electron op, $1 \text{ glucose-molecuul}$ moet dus 24 electronen afstaan.

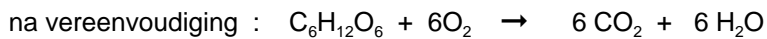
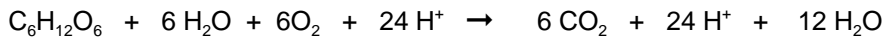
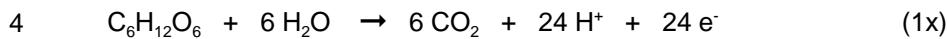
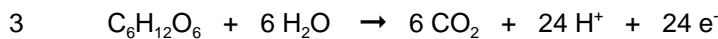
2 $\text{pH} = 6,90 \rightarrow [\text{H}_3\text{O}^+] = 1,26 \times 10^{-7} \text{ mol L}^{-1}$



$$K_z = [\text{H}_3\text{O}^+] \times [\text{HCO}_3^-] / [\text{CO}_2] = 4,5 \times 10^{-7} = 1,26 \times 10^{-7} \times [\text{HCO}_3^-] / 0,011$$

$$\rightarrow [\text{HCO}_3^-] = 0,0393 \text{ mol L}^{-1}$$

$$\text{per L moet opgelost worden : } 0,0393 \times 84,01 = 3,3 \text{ g NaHCO}_3$$



5

