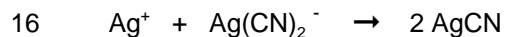


## Cyanide in afvalwater



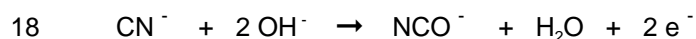
17 - nodig :  $7,82 \times 0,0192 = 0,150 \text{ mmol Ag}^+$

-  $0,150 \text{ mmol Ag}^+$  reageert met  $0,300 \text{ mmol CN}^-$

-  $0,300 \text{ mmol CN}^-$  zat in  $200 \text{ mL}$  afvalwater dus :

$$[\text{CN}^-] = 0,300 / 200 = 1,50 \times 10^{-3} \text{ mmol / mL} = 1,50 \times 10^{-3} \text{ mol / L}$$

- het afvalwater bevatte :  $1,50 \times 10^{-3} \times (12,0 + 14,0) = 3,90 \times 10^{-2} \text{ g} = 39,0 \text{ mg CN}^- \text{ per L}$



19 Het  $\text{CN}^-$  fungeert hier als reductor en staat dus elektronen af. Dat zal gebeuren aan de positieve elektrode ( die neemt ze op).

20 -  $\text{pH} = 9,5$  dus  $[\text{H}_3\text{O}^+] = 3,16 \times 10^{-10} \text{ mol / L}$

-  $K_2 = [\text{H}_3\text{O}^+] \times [\text{CN}^-] / [\text{HCN}] = 6,1 \times 10^{-10} = 3,16 \times 10^{-10} \times [\text{CN}^-] / [\text{HCN}]$

-  $[\text{CN}^-] / [\text{HCN}] = 6,1 \times 10^{-10} / 3,16 \times 10^{-10} = 1,93 = 1,93 / 1,00$

- percentage  $\text{CN}^-$  dat is omgezet tot  $\text{HCN} = \{ 1,00 / ( 1,00 + 1,93 ) \} \times 100 \% = 3 \times 10 \%$