Raphael Lopes Cardoso 4W2 27/4/2016

(1)

Gegeven: $V_{opl} = 275\,ml = 275 \cdot 10^{-3}\,l$

$c = 2{,}70\,mol/l$

Gevraagd: N?

Oplossing:

$c = \frac{n}{V_{opl}}$

$2{,}70\,mol/l = \frac{n}{275 \cdot 10^{-3}\,l}$

$n = 0{,}743\,mol$

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$N = n \cdot N_A$

$N = 0{,}743\,mol \cdot 6{,}022 \cdot 10^{23}$

$N = 4{,}47 \cdot 10^{23}$ moleculen

(2)

Gegeven:

Cola-reg. (cr)
$V = 300\,ml = 300 \cdot 10^{-3}\,l$
$c = 0{,}31\,mol/l$ suiker

+

Cola-life (cl)
$V = 75\,ml = 75 \cdot 10^{-3}\,l$
$c_{massa} = 60\,g/l$ suiker

a) Gevraagd: n_{suiker}?

Oplossing:

In cola-life:

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$60\,g/l = \frac{m}{75 \cdot 10^{-3}\,l}$

$m = 4{,}5\,g$

$M = \frac{m}{n} \rightarrow 342{,}0\,g/mol = \frac{4{,}5\,g}{n} \rightarrow n = \frac{4{,}5\,g}{342{,}0\,g/mol}$ $n_s = 0{,}013\,mol$

$M_{suiker} = 12 \cdot 12{,}0 + 22 \cdot 1{,}0 + 11 \cdot 16{,}0 = 342{,}0\,g/mol$

In reg-cola:

$0{,}31\,mol/l = \frac{n}{300 \cdot 10^{-3}\,l}$

$n = 0{,}093\,mol$

$0{,}093\,mol + 0{,}013\,mol = n_{totsuiker}$

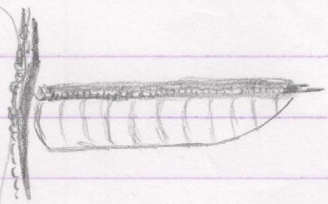
$= 0{,}106\,mol$

b) Gevraagd.: C_{massa}?

Oplossing:

~~0,10 mol~~

~~$M = \frac{m}{n}$~~



$342,0\ g/mol = \frac{m}{0,106\ mol}$

$\rightarrow m = 36,3\ g$

$\rightarrow V_{tot} = 300 \cdot 10^{-3}\ l + 75 \cdot 10^{-3}\ l$

$V_{tot} = 375 \cdot 10^{-3}\ l$

$\Downarrow$

3

$C_{massa} = \frac{36,3\ g}{375 \cdot 10^{-3}\ l}$

$C_{massa} = 96,8\ g/l$

(3)

Gegeven: $c = 2,0\ mol/l\ AgNO_3$ $V = 100\ ml$

$\Rightarrow c = 0,26\ mol/l$

1 a) een pipet (met opzuigpeer) en maat~~beker~~kolf

b) Gevraagd: V_{opl}?

Oplossing:

~~$AgNO_3$~~ ~~$AgNO_3$~~

$2,0\ mol/l$ $100\ ml$

$\Downarrow \cdot 0,13$

3

$0,26\ mol/l$ $V_{opl} = 13\ ml$