

$$80g \left(\frac{1kg}{1000g} \right) = 0.08kg$$



Alcohol = 80g \leftarrow solvente $\rightarrow 0.08kg$

m = 3.5m

$3.5m = \frac{\text{mol soluto}}{\text{kg solvente}} \rightarrow 3.5m(0.08kg) = \text{mol soluto}$

0.28 mol = mol soluto

Masa molar C_2H_5OH

C = $2 \times 12 = 24$

H = $6 \times 1 = 6$

O = $1 \times 16 = 16$
46 uma

$0.28 \text{ mol} \left(\frac{46g}{1 \text{ mol}} \right) = 12.88g \text{ Alcohol}$



C = $1 \times 12 = 12$

H = $4 \times 1 = 4$
16 uma

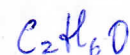
$15g \left(\frac{1 \text{ mol } CH_4}{16g} \right) \left(\frac{4 \text{ mol H}}{1 \text{ mol } CH_4} \right) \left(\frac{6.022 \times 10^{23} \text{ átomos de H}}{1 \text{ mol H}} \right) = 2.26 \times 10^{24} \text{ átomos H}$



P = $1 \times 30.97 = 30.97$

H = $3 \times 1 = 3$
33.97 uma

$15g \left(\frac{1 \text{ mol } PH_3}{33.97g} \right) \left(\frac{3 \text{ mol H}}{1 \text{ mol } PH_3} \right) \left(\frac{6.022 \times 10^{23} \text{ átomos de H}}{1 \text{ mol H}} \right) = 7.98 \times 10^{23} \text{ átomos H}$



C = $2 \times 12 = 24$

H = $6 \times 1 = 6$

O = $1 \times 16 = 16$
46 uma

$15g \left(\frac{1 \text{ mol } C_2H_6O}{46g} \right) \left(\frac{6 \text{ mol H}}{1 \text{ mol } C_2H_6O} \right) \left(\frac{6.022 \times 10^{23} \text{ átomos de H}}{1 \text{ mol H}} \right) = 1.18 \times 10^{24} \text{ átomos H}$



H = $2 \times 1 = 2$ uma

$15g \left(\frac{1 \text{ mol } H_2}{2g} \right) \left(\frac{2 \text{ mol H}}{1 \text{ mol } H_2} \right) \left(\frac{6.022 \times 10^{23} \text{ átomos de H}}{1 \text{ mol H}} \right) = 9.033 \times 10^{24} \text{ átomos de H}$ maior



H = $1 \times 1 = 1$

Cl = $1 \times 35.45 = 35.45$
36.45 uma

$15g \left(\frac{1 \text{ mol } HCl}{36.45g} \right) \left(\frac{1 \text{ mol H}}{1 \text{ mol } HCl} \right) \left(\frac{6.022 \times 10^{23} \text{ átomos de H}}{1 \text{ mol H}} \right) = 2.48 \times 10^{23} \text{ átomos H}$

5) 0.5 M H_2O

$$0.5 M = \frac{\text{mol}}{1 L \text{ solution}} = 0.5 \text{ mol } H_2O \left(\frac{18 g H_2O}{1 \text{ mol}} \right) = 9 g H_2O$$

$H = 2 \times 1 = 2$

$O = 1 \times 16 = 16$
18 u.m.a

6) HNO_3

$H = 1 \times 1 = 1$

$N = 1 \times 14 = 14$

$O = 3 \times 16 = 48$

63 u.m.a

$$1.2 M = \frac{\text{mol soluto}}{0.5 L}$$

$$\text{mol soluto} = 1.2 M \times 0.5 L = 0.6 \text{ mol}$$

$$0.6 \text{ mol} \left(\frac{63 g HNO_3}{1 \text{ mol}} \right) \left(\frac{65\%}{100\%} \right) \left(\frac{1 \text{ ml } HNO_3}{1.4 g} \right) = 17.55 \text{ ml } HNO_3$$

7) C_7H_{16}

$C = 7 \times 12 = 84$

$H = 16 \times 1 = 16$
100 u.m.a

$$128 g \left(\frac{1 \text{ mol } C_7H_{16}}{100 g} \right) = 1.28 \text{ mol } C_7H_{16}$$

$$X = \frac{1.28 \text{ mol}}{6.84 \text{ mol}} = 0.187$$

C_8H_{18}

$C = 8 \times 12 = 96$

$H = 18 \times 1 = 18$
114 u.m.a

$$332.88 g \left(\frac{1 \text{ mol } C_8H_{18}}{114 g} \right) = 2.92 \text{ mol } C_8H_{18}$$

$$X = \frac{2.92 \text{ mol}}{6.84 \text{ mol}} = 0.427$$

C_9H_{20}

$C = 9 \times 12 = 108$

$H = 20 \times 1 = 20$
128 u.m.a

$$337.92 g \left(\frac{1 \text{ mol}}{128 g} \right) = 2.64 \text{ mol } C_9H_{20}$$

$$X = \frac{2.64 \text{ mol}}{6.84 \text{ mol}} = 0.386$$

$$X_{\text{total}} = 0.187 + 0.427 + 0.386$$

$$\text{mol total} = (1.28 + 2.92 + 2.64) \text{ mol} = 6.84 \text{ mol}$$

$$= 1$$

16) 200g solvente

$$10\% = \frac{g_{\text{solute}}}{g_{\text{solute}} + g_{\text{solvente}}} \times 100\%$$

$$0.10 = \frac{g_{\text{solute}}}{g_{\text{solute}} + g_{\text{solvente}}}$$

$$0.10(g_{\text{solute}} + g_{\text{solvente}}) = g_{\text{solute}}$$

$$0.10g_{\text{solute}} + 20 = g_{\text{solute}}$$

$$20 = 0.9 g_{\text{solute}}$$

$$g_{\text{solute}} = \frac{20g}{0.9}$$

$$g_{\text{solute}} = 22.22g$$

18) 4% de un elemento dentro de $C_{27}H_{46}O$

$$C = 27 \times 12 = 324$$

$$H = 46 \times 1 = 46$$

$$O = 1 \times 16 = 16$$

$$386 \text{ una}$$

$$\frac{324g}{386g} \times 100\% = 83.93\%$$

$$\frac{46g}{386g} \times 100\% = 11.92\%$$

$$\frac{16g}{386g} \times 100\% = 4.14\% \leftarrow \text{El que compone un 4\% de la composición}$$

19) $N = 14 \text{ una}$

$$4.20 \times 10^{23} \text{ moléculas de } (NH_4)_2SO_4 \left(\frac{1 \text{ mol } (NH_4)_2SO_4}{6.022 \times 10^{23} \text{ moléculas}} \right) \left(\frac{2 \text{ mol N}}{1 \text{ mol } (NH_4)_2SO_4} \right) \left(\frac{14 g N}{1 \text{ mol N}} \right) = 19.53 g N$$

21) 50ml sirope de glucosa ← soluto

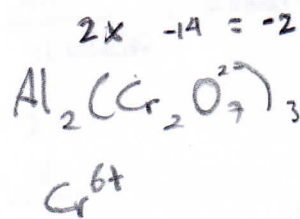
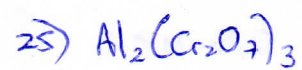
1000ml H_2O ← solvente

$$\text{solución} = (1000 + 50) \text{ ml}$$

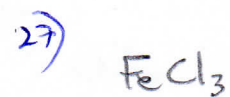
$$= 1050 \text{ ml}$$

$$\% \text{ V/V} = \frac{50 \text{ ml}}{1050 \text{ ml}} \times 100\%$$

$$= 4.76\% \text{ V/V}$$



$2x - 14 = -2$
 $2x = 12$
 $x = 6+$

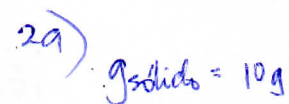


$\text{Fe} = 1 \times 55.85 = 55.85$

$\text{Cl} = 3 \times 35.45 = \frac{106.35}{162.2 \text{ uua}}$

$50 \text{ d} \left(\frac{1 \text{ L}}{100 \text{ cl}} \right) = 0.5 \text{ L}$

$M = \frac{\frac{40 \text{ g}}{162.2 \text{ g}}}{0.5 \text{ L}} = 0.49 \text{ M}$

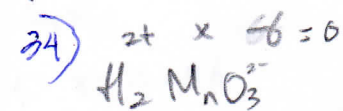


$V_i = 20 \text{ ml}$

$V_f = 27.5 \text{ ml}$

$\Delta V = (27.5 - 20) \text{ ml}$
 $= 7.5 \text{ ml}$

$D = \frac{10 \text{ g}}{7.5 \text{ ml}}$
 $= 1.33 \text{ g/ml}$



$2 + x - 6 = 0$

$x - 4 = 0$

$x = 4+$