

1000ml  
 1 LITRO HIDRACINA  
 $N_2H_4$

$\rho = 0,74 \text{ g/ml}$   
 40%

SOLVENTE ALCOHOL

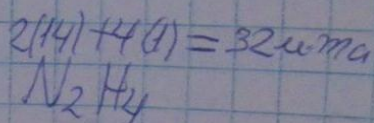
% AT-g "H" = ?

a)  $\rho = \frac{m}{V}$

$0,74 = \frac{m}{1000 \text{ ml}}$

740g = m solución

b)  $\frac{40}{100} (740 \text{ g}) = 296 \text{ g } N_2H_4$



c)  $n = \frac{m}{P.M.} = \frac{296 \text{ g}}{32} = 9,25 \text{ MOLES DE } N_2H_4$

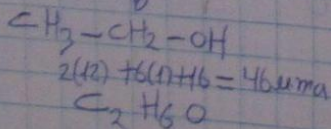
d) 9,25 MOLES ( $N_2H_4$ )

37 AT-g "H"  
 18,5 AT-g "N"  
 55,5 AT-g

e)  $m_{\text{solución}} = m_{\text{soluto}} + m_{\text{solvente}}$   
 $740 \text{ g} = 296 \text{ g } N_2H_4 + m_{\text{solvente}}$

444g ALCOHOL =  $m_{\text{solvente}}$   
 ETILICO

f)  $n_{\text{Alcohol}} = \frac{m}{P.M.} = \frac{444}{46} = 9,65 \text{ MOLES DE ALCOHOL ETILICO}$



g) 9,65 MOLES ( $\text{C}_2\text{H}_6\text{O}$ )

19,3 AT-g "C"  
 57,9 AT-g "H"  
 9,65 AT-g "O"  
 86,85 AT-g

h) 9,65

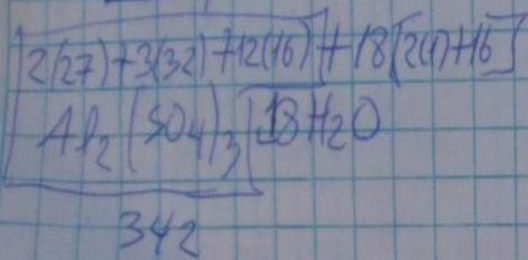
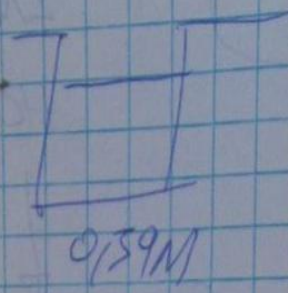
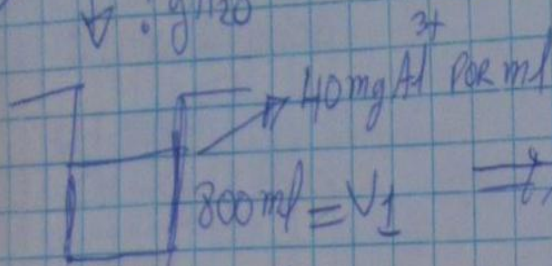
$55,5 + 86,85 = 142,35$   
 TOTAL AT-g

i)  $\frac{37 + 57,9}{142,35} \text{ AT-g "H"} \rightarrow 100\%$   
 $\rightarrow 66,6\%$



13

↓ ? g H<sub>2</sub>O



a) 40 mg Al<sup>3+</sup> → 1 ml  
X → 800 ml

$$X = 32000 \text{ mg Al} \left( \frac{10^{-3} \text{ g}}{1 \text{ mg}} \right) = 32 \text{ g Al}^{3+}$$

b) 342 g Al<sub>2</sub>(SO<sub>4</sub>) → 54 g Al  
Y → 32 g Al  
Y = 202,67 g Al<sub>2</sub>SO<sub>4</sub>

c)  $M = \frac{m}{V_m} = \frac{202,67}{342}$

$$0,59 = \frac{V}{\frac{202,67}{342}}$$

$$V_2 = 1 \text{ LITRO}$$

1000 ml

d)  $V_{\text{H}_2\text{O}} = V_2 - V_1$   
= 1000 - 800  
= 200 ml H<sub>2</sub>O

13 LITRA



20

9 L H<sub>2</sub>O

1 LITRO SOLUCION

52 + 3(35,5)

CCl<sub>3</sub> · 6H<sub>2</sub>O

158,5

20 mg Cr<sup>3+</sup> por ml

⇒

10L

N=?

(a) 20 mg Cr<sup>3+</sup> → 1 ml

X ← 1000 ml

$$X = 20000 \text{ mg Cr}^{3+} \left( \frac{10^{-3} \text{ g}}{1 \text{ mg}} \right) = 20 \text{ g Cr}^{3+}$$

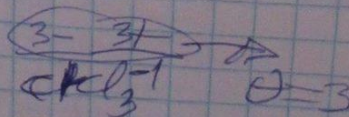
(b) 158,5 g CCl<sub>3</sub> → 52 g Cr<sup>3+</sup>

Y ← 20 g Cr<sup>3+</sup>

$$Y = 61 \text{ g CCl}_3$$

(c)

$$N = \frac{\left(\frac{\text{m}}{\text{PM}}\right) \cdot \theta}{V} = \frac{(61 / 158,5) \cdot 3}{10L}$$



~~N = 0,145~~ [EJANDO]



19

% CaSO<sub>4</sub>  
CaCO<sub>3</sub>, CaSO<sub>4</sub>  
50g

455 cm<sup>3</sup>

2M

HCl

(a)

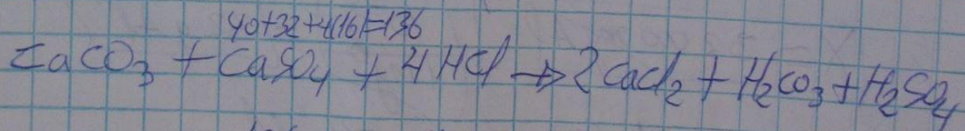
$$M = \frac{n}{V}$$

$$2 = \frac{n}{0,455L}$$

$$\boxed{0,91 = n}$$

MOLES HCl

(b)



136g — 4 MOLES

Xg — 0,91 MOLES

$$\boxed{X = 30,94g CaSO_4}$$

(c)

100% → 50g MINERAL

7 — 30,94 CaSO<sub>4</sub>

$$\neq 61\% CaSO_4$$

81



(12)  $V_1 = 25 \text{ cm}^3$  NEUTRALIZAR  $20,8 \text{ cm}^3 = V_2$  (a)  $V_1 C_1 = V_2 C_2$   
 $\text{H}_2\text{SO}_4$  +  $\text{M(OH)}$   $(25) C_1 = 20,8 (0,2)$   
 $5\%$   $0,2 \text{ N} = C_2$   $C_1 = 0,166 \text{ N}$   
 $d = ? \text{ g/ml}$   
 $C_1 = ?$

(b)  $N = M \cdot \theta \rightarrow \text{H}_2\text{SO}_4$   
 $0,166 = M(2)$   $\theta = 2$   
 $0,083 = M$

(c)  $M = \frac{\% (d) 10}{\text{P.M}}$   
 $0,083 = \frac{(5) d (10)}{98}$

~~$0,16 \text{ g/ml} = d$~~  (E) NFELM20.

(13) (0,5L) 500 ml  $\nabla$  ABSORVIDOS  $\text{NH}_3 \rightarrow \theta = 1$   
 $\text{NH}_3$   
 $765 \text{ mmHg}$   $750 \text{ ml}$   $750 \text{ ml}$   $750 \text{ ml}$   
 $20^\circ\text{C}$   $\text{H}_2\text{O}$   
 $N = ?$

(a)  $P V = n R T$

$\left[ \frac{765 \text{ mmHg}}{760 \text{ mmHg}} \right] \text{Atm} (0,5 \text{ L}) = n (0,0821) (20 + 273) \text{ K}$

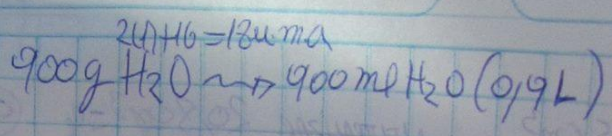
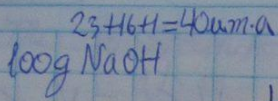
$0,021 = n$   
 MOLES  $\text{NH}_3$

(b)  $N = \frac{n \cdot \theta}{V_1} = \frac{0,021 (1)}{0,75} = 0,028$   $\theta = 1 (\text{NH}_3)$

ANSY



15



$d = 2,13 \text{ g/cm}^3$

F: FRACTION  
 MOLAR

a)  $F_{\text{H}_2\text{O}} = \frac{n_{\text{H}_2\text{O}}}{n_{\text{H}_2\text{O}} + n_{\text{NaOH}}} = \frac{\left(\frac{900}{18}\right)}{\frac{900}{18} + \frac{100}{40}} = 0,952$

b)  $F_{\text{H}_2\text{O}} + F_{\text{NaOH}} = 1$   
 $0,952 + F_{\text{NaOH}} = 1$

$F_{\text{NaOH}} = 0,048$

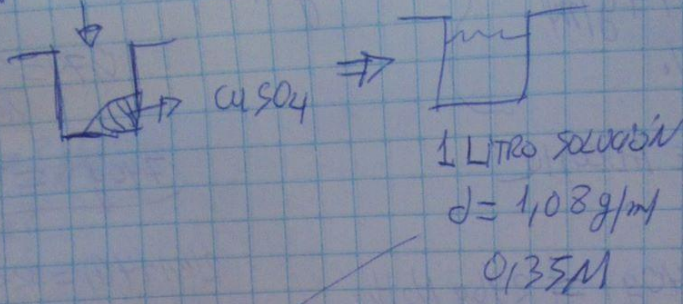
$F_{\text{H}_2\text{O}} - F_{\text{NaOH}} = 0,952 - 0,048 = 0,904$

c)  $M = \frac{\left(\frac{m}{P.M}\right)}{V} = \frac{\left(\frac{100 \text{ g NaOH}}{40}\right)}{0,9 \text{ L}} = 2,78$

ENDY.



16) ? pt contenidos en H<sub>2</sub>O



(a)  $d = \frac{m}{V}$   
 $1,08 = \frac{m_{\text{solución}}}{1}$   
 $1080 \text{ g} = m_{\text{solución}}$

(b)  $M = \frac{m}{P.M.}$   
 $0,35 = \frac{m_{\text{CuSO}_4}}{159,5}$   
 $55,825 \text{ g} = m_{\text{CuSO}_4 \text{ SOLUTO}}$

(c)  $m_{\text{solución}} = m_{\text{solute}} + m_{\text{H}_2\text{O}}$   
 $1080 \text{ g} = 55,825 \text{ g} + m_{\text{H}_2\text{O}}$   
 $1024,175 \text{ g} = m_{\text{H}_2\text{O}}$

(d)  $n = \frac{m}{P.M.} = \frac{57 \text{ MOLES H}_2\text{O}}{57 \text{ MOLES}}$   
 $\left[ \begin{array}{l} H_1 = 2 = \text{pt} \\ 2 \text{ pt} \\ 57 \text{ MOLES (10 pt)} \\ 570 \text{ MOLES pt} \end{array} \right] \left[ \begin{array}{l} 8 = 2 = \text{pt} \\ 8 \text{ pt} \end{array} \right]$   
**RESPUESTA = 570 + 8 = 578 pt**