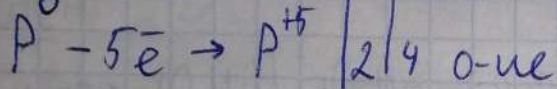
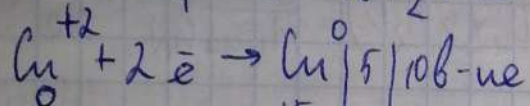


X-9-39



P₄ - белгилі фосфор.

N2

$$m_c = 182$$

C : O : H

$$2 : 1 : 5 \quad | \quad 1 \cdot 4$$

$$8 : 4 : 20 \quad | \quad 1 \cdot 3$$

$$24 : 12 : 60 \Rightarrow \text{CO}_2 : \text{CO} : \text{CH}_4$$

C : O : H = 2 : 1 : 5

w(CO₂) - ?

w(CO) - ?

w(CH₄) - ?

$$2 \nu(\text{CO}_2) = \nu(\text{CO}); \quad 5 \nu(\text{CO}_2) = \nu(\text{CH}_4) \quad (\text{м.к. } 360 \text{ атанов})$$

$$\Rightarrow \cancel{m} \nu(\text{CO}_2) = 2 \nu(\text{CO}) = 5 \nu(\text{CH}_4) \Rightarrow$$

$$\Rightarrow m_c = m(\text{CO}_2) + m(\text{CO}) + m(\text{CH}_4) \Rightarrow$$

$$\Rightarrow m_c = \nu(\text{CO}_2) \cdot M(\text{CO}_2) + \nu(\text{CO}) \cdot M(\text{CO}) +$$

$$+ \nu(\text{CH}_4) \cdot M(\text{CH}_4) \Rightarrow 44 \cdot \nu(\text{CO}_2) + 28 \cdot 2 \nu(\text{CO}_2) +$$

$$+ 16 \cdot 5 \nu(\text{CO}_2) = 182 \Rightarrow \nu(\text{CO}_2) \cdot (44 + 56 + 80) = 182 \Rightarrow$$

$$\Rightarrow \nu(\text{CO}_2) = \frac{182}{180} = 1 \text{ моль} \Rightarrow \nu(\text{CO}) = 0,2 \text{ моль};$$

$$\nu(\text{CH}_4) = 0,5 \text{ моль} \Rightarrow m(\text{CO}_2) = \nu \cdot M = 44 \text{ г};$$

$$m(\text{CO}) = \nu \cdot M = 5,6 \text{ г}; \quad m(\text{CH}_4) = \nu \cdot M = 8 \text{ г} \Rightarrow$$

$$\Rightarrow w(\text{CO}_2) = \frac{m(\text{CO}_2)}{m_c} = \frac{44}{182} \approx 0,2418 (24,18\%);$$

$$w(\text{CO}) = \frac{m(\text{CO})}{m_c} = \frac{5,6}{182} \approx 0,0307 (3,07\%);$$

$$w(\text{CH}_4) = \frac{m(\text{CH}_4)}{m_c} = \frac{8}{182} \approx 0,044 (4,4\%).$$

Амбем: w(CO₂) = 24,18%; w(CO) = 3,07%; w(CH₄) = 4,4%.

95

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N3.

$$m(\text{CuSO}_4) = 82$$

$$m(\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}) =$$

$$= 286 \text{ z.}$$

$$M_{\text{r-ра}}(\text{Na}_2\text{CO}_3) = 202$$

$$m(\text{H}_2\text{O})_0 = ?$$

$$\nu(\text{CuSO}_4) = \nu(\text{CuSO}_4 \cdot 5\text{H}_2\text{O}) = \frac{m(\text{CuSO}_4)}{M(\text{CuSO}_4)} = \frac{8}{160} = 0,05 \text{ моль}$$

$$m(\text{H}_2\text{O})_1 = 5 \nu(\text{CuSO}_4 \cdot 5\text{H}_2\text{O}) \cdot M(\text{H}_2\text{O}) = 0,05 \cdot 5 \cdot 18 = 4,5 \text{ z.}$$

$$\text{на } 100 \text{ z} \rightarrow 218 \text{ z} \Rightarrow m_{\text{р-ра}} = 121,8 \text{ z.}$$

$$\frac{m(\text{Na}_2\text{CO}_3)_{\text{р-ра}}}{m_{\text{р-ра}}} = \frac{20}{121,8} \approx 0,1642$$

$$m_{\text{вода}}(\text{H}_2\text{O})_2 = 100 \cdot 0,1642 = 16,42 \text{ граммов.}$$

масса воды в насыщ. растворе Na_2CO_3 .

Na_2CO_3 образует такой кристаллогидрат $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ (кристаллическая сода) $\Rightarrow \nu(\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}) = \frac{m}{M} = \frac{286}{286} = 0,01 \text{ моль}$

$$m(\text{H}_2\text{O})_3 = 10 \nu(\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}) \cdot M(\text{H}_2\text{O}) = 1,8 \text{ z.}$$

$$m(\text{H}_2\text{O})_0 = m(\text{H}_2\text{O})_1 + m(\text{H}_2\text{O})_2 + m(\text{H}_2\text{O})_3 = 4,5 + 16,42 + 1,8 = 22,72 \text{ z.}$$

Ответ: 22,72 z.

N4

(3) z 85

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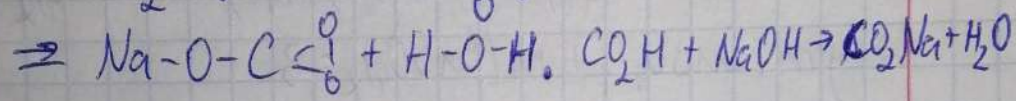
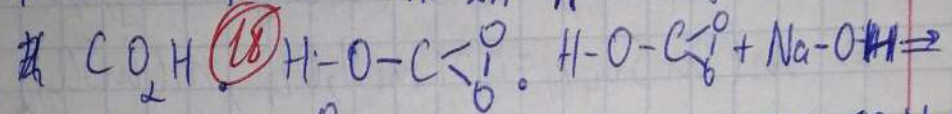
w(C) = 26,67%
w(O) = 71,11%
w(H) = 2,22%

C O H
26,67 : 71,11 : 2,22
 $\frac{26,67}{12} : \frac{71,11}{16} : \frac{2,22}{1}$

Bo - ?

2,225 : 4,444 : 2,22

1 : 2 : 1 $\Rightarrow C_n O_{2n} H_n \Rightarrow$ Benzene -



- A) 10 ✓
- B) 13
- B) 7 ✓
- Г) 15
- Д) 4
- E) 3 ✓

- N5
- X) 8
 - 3) 12
 - И) 14
 - K) 11
 - Л) 2
 - M) 6

- H) 5
- O) 16
- П) 1
- P) 18
- C) 9
- T) 17

1,58

$m(\text{CuSO}_4) = 300\text{z}$
 $w(\text{CuSO}_4)_{\text{p.na}} = 0,03(3\%)$

Jačiem:

$m(\text{CuSO}_4)_0 = m_{\text{p.na}} \cdot w_{\text{p.na}} = 3\text{z} = m(\text{CuSO}_4)_1 + m(\text{CuSO}_4)_2$

$m(\text{H}_2\text{O})_0 = 100 - 3 = 97\text{z} = m(\text{H}_2\text{O})_1 + m(\text{H}_2\text{O})_2$

~~1z CuSO₄ = 100z bogor (bo 2-m p-pe) \rightarrow~~

~~$\Rightarrow m_{\text{p.na}} = 0,01\text{meogor} \Rightarrow m_{\text{p.na}} = 1,01\text{meogor}$~~

X-9-29

$$m(\text{CuSO}_4)_{1-100} = 1,01 m_{\text{eogor}} + 250 \nu(\text{CuSO}_4 \cdot 5\text{H}_2\text{O})$$

$$100 = 1,01 m_{\text{eogor}} + 250 \nu(\text{CuSO}_4 \cdot 5\text{H}_2\text{O})$$

$$0,4 \nu(\text{CuSO}_4)_{1-100} \quad m(\text{H}_2\text{O})_1 \quad \nu(\text{CuSO}_4 \cdot 5\text{H}_2\text{O}) = \frac{m(\text{CuSO}_4)}{M(\text{CuSO}_4)} = \frac{1}{160} = 6,25 \cdot 10^{-3}$$

$$m(\text{H}_2\text{O}) = 5 \nu \cdot M = 0,5625 \nu$$

$$12 \text{ CuSO}_4 - 100 \text{ H}_2\text{O} \quad (\text{в } 2\text{-м } \nu\text{-ре})$$

$$12 \text{ CuSO}_4 - 0,5625 \nu \quad (\text{в первом киповесе}) \Rightarrow$$

$$\Rightarrow m(\text{CuSO}_4)_1 = 0,01 m(\text{H}_2\text{O})_1; \quad m(\text{CuSO}_4)_2 = \frac{16}{9} m(\text{H}_2\text{O})_2 \Rightarrow$$

$$\Rightarrow \begin{cases} m(\text{CuSO}_4)_1 + m(\text{CuSO}_4)_2 = 3 \\ m(\text{H}_2\text{O})_1 + m(\text{H}_2\text{O})_2 = 97 \end{cases}$$

$$\begin{cases} m(\text{H}_2\text{O})_1 = 97 - m(\text{H}_2\text{O})_2 \end{cases}$$

$$\begin{cases} m(\text{H}_2\text{O})_1 = 97 - m(\text{H}_2\text{O})_2 \end{cases}$$

$$\begin{cases} 0,01 m(\text{H}_2\text{O})_1 + \frac{16 m(\text{H}_2\text{O})_2}{9} = 3 \end{cases}$$

$$\begin{cases} m(\text{H}_2\text{O})_1 = 97 - m(\text{H}_2\text{O})_2 \end{cases}$$

$$\begin{cases} 0,01(97 - m(\text{H}_2\text{O})_2) + \frac{16 m(\text{H}_2\text{O})_2}{9} = 3 \end{cases}$$

$$\begin{cases} m(\text{H}_2\text{O})_1 = 97 - m(\text{H}_2\text{O})_2 \\ \frac{16 m(\text{H}_2\text{O})_2}{9} - 0,01 m(\text{H}_2\text{O})_2 = 3 - 0,97 \end{cases}$$

$$\begin{cases} m(\text{H}_2\text{O})_1 = 97 - m(\text{H}_2\text{O})_2 \\ \frac{1591 m(\text{H}_2\text{O})_2}{900} = 2,03 \end{cases}$$

$$\begin{cases} m(\text{H}_2\text{O})_2 \approx 1,1483 \end{cases}$$

$$\begin{cases} m(\text{H}_2\text{O})_1 \approx 95,8517 \end{cases} \Rightarrow$$

$$m(\text{CuSO}_4)_2 \approx 2,0415$$

$$m(\text{CuSO}_4)_1 \approx 0,9585$$

$$m_{\text{para}} = 97,17 \text{ r}$$

$$m_{\text{kr}} = 2,3 \text{ r}$$

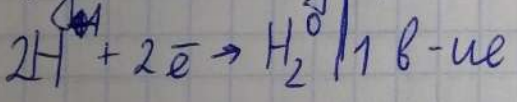
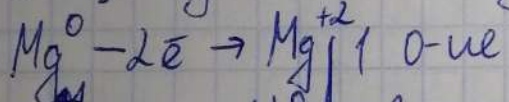
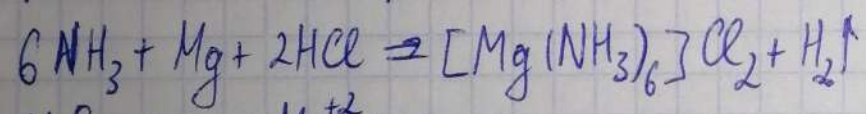
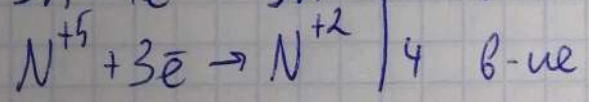
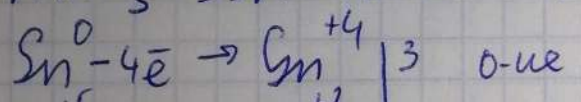
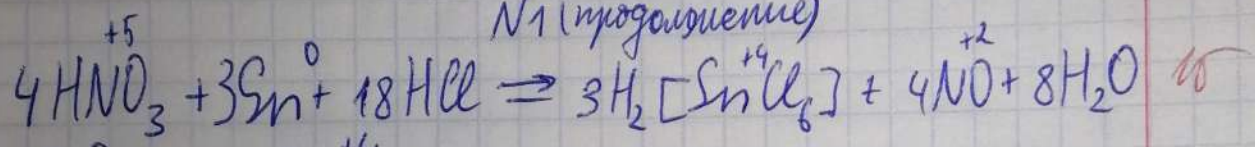
4) \Rightarrow m_{kr} m_{para} :

1) Измерим объем раствора CuSO_4 , его объем будет составлять $V_{\text{р-ра}} = \frac{m}{\rho} = \frac{100}{1,05} \frac{191,7}{1,015} = 188,87 \text{ мл.}$

2) Взвесим массу необходимого медного купороса:
 $m(\text{H}_2\text{O})_2 + m(\text{CuSO}_4)_2 = 3,1898 \text{ грамма.}$

3) Добавим к раствору 2 медной купорос.

N1 (прогнозирование)



1	2	3	4	5	6	Σ
1	9	8	15	1,58	1	21,5

(Handwritten scribbles and signatures are present below the table)

20-9-29