

X-10-4

Учебная олимпиада по химии 2018-2019гг.

Задача №1

Дано:

Na

Na_2O

+ H_2O

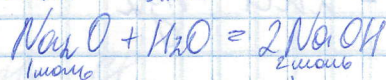
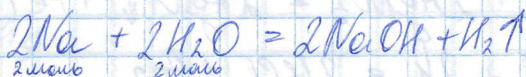
$V(\text{H}_2) = 4,48 \text{ л}$

$m(\text{p-pa}) = 240 \text{ г}$

$W(\text{NaOH}) = 10\% = 0,1$

$W(\text{Na}) =$

Решение:



$$n(\text{Na}) = \frac{2}{1} n(\text{H}_2) = 2 \cdot 0,2 = 0,4 \text{ моль}$$

$$n(\text{H}_2) = \frac{V}{V_m} = \frac{4,48 \text{ л}}{22,4 \text{ л/моль}} = 0,2 \text{ моль}$$

$$m(\text{Na}) = n \cdot M = 0,4 \text{ моль} \cdot 23 = 9,2 \text{ г}$$

$$m(\text{NaOH}) = m_{\text{p-pa}} \cdot W(\text{NaOH}) = 240 \text{ г} \cdot 0,1 = 24 \text{ г}$$

$$n(\text{NaOH}) = \frac{m}{M} = \frac{24}{40} = 0,6 \text{ моль}$$

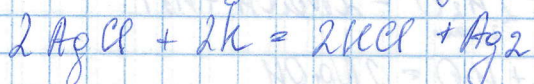
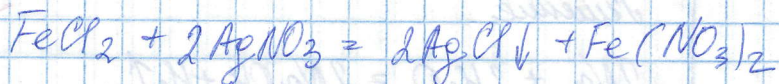
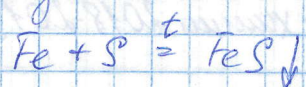
$$n(\text{Na}_2\text{O}) = \frac{1}{2} \cdot n(\text{NaOH}) = \frac{0,6}{2} = 0,3 \text{ моль}$$

$$m(\text{Na}_2\text{O}) = n \cdot M = 0,3 \cdot 62 = 18,6 \text{ г}$$

$$W(\text{Na}) = \frac{m(\text{Na})}{m_{\text{p-pa}}} = \frac{18,6 \text{ г}}{240 \text{ г}} \cdot 100\% = 7,75\%$$

Ответ: $W(\text{Na}) = 7,75\%$

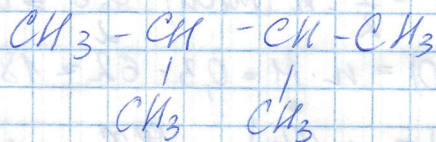
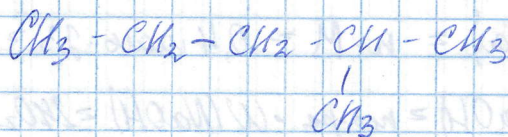
Задача №2



35

Задача №5

C₆H₁₄



20

