



Идентификационный номер
11-7-2555

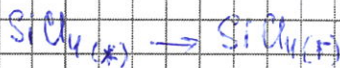
1 | 2 | 3 | 4 | 5 | Σ
- | 0 | 8 | 16 | 13 | 3.7

ПИСЬМЕННАЯ РАБОТА

Вариант 2

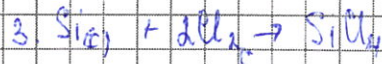
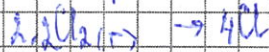
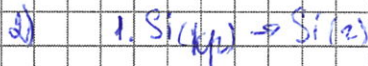
Задачи 11-5.

5



$\Delta H^{\circ}_f [SiCl_{4(г)}] = \Delta H^{\circ}_f [SiCl_{4(ж)}] + \Delta H_{испарения}$

$\Delta H^{\circ}_f [SiCl_{4(г)}] = -687 \frac{kJ}{моль} + 30 \frac{kJ}{моль} = -657 \frac{kJ}{моль}$



$\Delta H^{\circ}_f [SiCl_{4(г)}] = \Delta H_{испар.}(Si) + \Delta H(Cl_2) + 4[SiCl_4]$

$\Delta H_{испар.}(Si) = X$

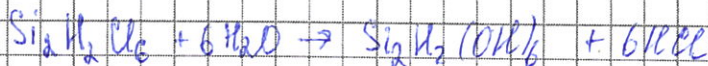
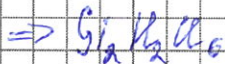
$-657 = X + 2 \cdot 243 + (-4 \cdot 399)$ 15

$-657 = X + 486 + (-1596)$

$X = 453$

$\Delta H(Si)_{испар.} = 453 \frac{kJ}{моль}$ 15

3) $M(Si_2H_2Cl_6) = 2 \cdot M_{Si} + 2 \cdot M_{H_2} + 6 \cdot M_{Cl} = 9,793 \cdot 29 = 284 \frac{г}{моль}$ 25



черновик



чистовик

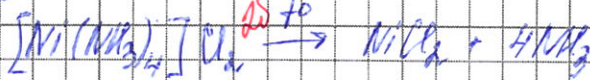
(поставьте галочку в нужном поле)

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(нумеруются только чистовики)

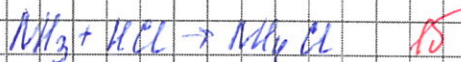
ПИСЬМЕННАЯ РАБОТА

Задача 11-4.



~~n(Ni(NH3)4Cl2)~~ ~~n(Ni(NH3)4Cl2)~~ $n([Ni(NH_3)_4]Cl_2) = \frac{12,62}{198,47} = 0,05 \text{ моль}$

$n([Ni(NH_3)_4]Cl_2) = 4n(NH_3) \Rightarrow n(NH_3) = 0,05 \cdot 4 = 0,2 \text{ моль}$ 25



$n(HCl) = V \cdot C = 0,1 \cdot 1 = 0,1 \text{ моль}$

$n(HCl) = n(NH_3) = 0,1 \text{ моль}$ 10

$n(NH_3)_{ост} = 0,2 - 0,1 = 0,1 \text{ моль}$ 10 \Rightarrow р-р содержит NH_4^+

$pOH = pK_a + \log \frac{[NH_4^+]}{[NH_3]}$ 10

$pK_a = -\log(1,75 \cdot 10^{-5}) = 4,756$

$\log \frac{0,1}{0,1348} = \log(0,7418) = 0,1297$ 85

$pOH = 4,756 - 0,1297 = 4,6263$ 100

$pH = 14 - 4,6263 = 9,37$

Задача 11-3

$\frac{k_2}{k_1} = \varphi \frac{E^\ddagger}{E^\ddagger_0} ; \varphi = k \cdot C$

При $T_1 = 0, C = 243,15$

$C_0 = \frac{I}{v} = \frac{I}{nF}$

$C_0(1) = \frac{2}{9,082 \cdot 243,15} = 0,009 \text{ моль/л}$ 25

4

3



черновик



чистовик

(поставьте галочку в нужном поле)

ПИСЬМЕННАЯ РАБОТА

$$c_p = k(T_1) \cdot c_0(T_1)$$

$$k(T_1) = \frac{c_p}{c_0(T_1)} = \frac{0,015}{0,089} = 0,168 \text{ мин}^{-1} \quad \text{2 балла}$$

$$T_1 = 273,15 \Rightarrow T_2 = 273,15 + 30 = 303,15$$

$$\Delta T = 30 \Rightarrow \frac{k(T_2)}{k(T_1)} = 2^3 = 8 \quad \text{4 балла}$$

$$k(T_2) = 8 \cdot k(T_1) = 8 \cdot 0,168 = 1,345 \text{ мин}^{-1} \quad \text{2 балла}$$

$$\text{При } T_2 = 303,15, c_{\text{хл}}(T_2) = \frac{P}{kT_2} = \frac{0,5}{0,089 \cdot 303,15} = 0,02 \text{ моль/л} \quad \text{2 балла}$$

Задача 1-2

$$n(\text{HCl}) = 0,02125 \cdot 0,4 = 0,0085 \text{ моль}$$

$$C_{\text{H}_2\text{O}}, C_{\text{Cl}} = 0,325$$

$$1 \cdot n + n + 1 \cdot 35,5 = 0,325$$

~~n = 6~~ $n = 6$

$$\begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \end{array} + \text{CH}_3\text{MgI} \rightarrow \begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \quad \text{CH}_3 \end{array}$$

$$\begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \end{array} + \text{HCl} \rightarrow \begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \quad \text{CH}_3 \end{array} + \text{H}_2\text{O}$$

$$\begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \end{array} + \text{H}_2\text{O} \rightarrow \begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \quad \text{CH}_3 \end{array} + \text{H}_2\text{O} + \text{MgI} \cdot \text{OH}$$

$$\begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \end{array} + \text{HCl} \rightarrow \begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \quad \text{CH}_3 \end{array} + \text{H}_2\text{O}$$

$$\begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \end{array} + \text{NaHSO}_3 \rightarrow \begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C}^{\text{H}} \\ | \quad | \quad | \quad | \quad | \\ \text{O} - \text{CH}_2 - \text{CH}_3 \quad \text{SO}_3\text{Na} \end{array}$$

2