

$$n(\text{Na}_2\text{SO}_4) = 100 \text{ g} \cdot 0,1 \cdot \frac{1 \text{ mol}}{142 \text{ g}} = \mathbf{0,0704 \text{ mol}}$$

$$\text{ii) } n(\text{BaSO}_4) = \frac{1}{1} \cdot 0,0481 \text{ mol} = \mathbf{0,0481 \text{ mol}}$$

$$n'(\text{Na}_2\text{SO}_4) = 0,0704 \text{ mol} - \frac{1}{1} \cdot 0,0481 \text{ mol} = \mathbf{0,0223 \text{ mol}}$$

$$n(\text{NaCl}) = \frac{2}{1} \cdot 0,0481 \text{ mol} = \mathbf{0,0962 \text{ mol}}$$

$$\text{c) } m(\text{BaSO}_4) = 0,0481 \text{ mol} \cdot 233 \text{ g/mol} = 11,2 \text{ g}$$

$$m'(\text{Na}_2\text{SO}_4) = 0,0223 \text{ mol} \cdot 142 \text{ g/mol} = 3,17 \text{ g}$$

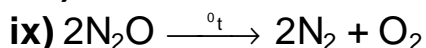
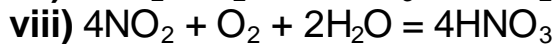
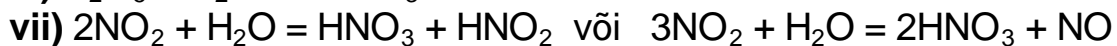
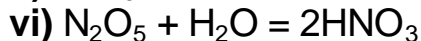
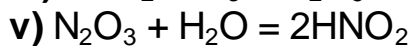
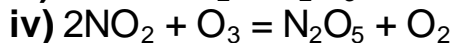
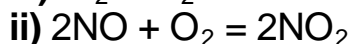
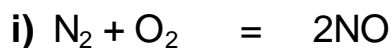
$$m(\text{NaCl}) = 0,0962 \text{ mol} \cdot 58,5 \text{ g/mol} = 5,63 \text{ g}$$

$$\%(\text{Na}_2\text{SO}_4) = \frac{3,17 \text{ g}}{100 \text{ g} + 100 \text{ g} - 11,2 \text{ g}} \cdot 100 = \mathbf{1,68}$$

$$\%(\text{NaCl}) = \frac{5,63 \text{ g}}{188,8 \text{ g}} \cdot 100 = \mathbf{2,98}$$

4. a) X – N, lämmastik
A – NO, lämmastikoksiid
B – NO₂, lämmastikdioksiid
C – N₂O₄, dilämmastiktetraoksiid
D – N₂O₃, dilämmastiktrioksiid
E – HNO₂, lämmastikushape
F – N₂O₅, dilämmastikpentaoksiid
G – HNO₃, lämmastikhape
H – N₂O, dilämmastikmonooksiid

b) elektriikaar



c) Kõrgemal temperatuuril on ülekaalus NO₂, madalamal temperatuuril on ülekaalus N₂O₄.

5. a) $2,4 \cdot 10^{-4} = [\text{Pb}^{2+}] \cdot [\text{Cl}^-]^2$
 $[\text{Cl}^-] = 2[\text{Pb}^{2+}]$
 $4[\text{Pb}^{2+}]^3 = 2,4 \cdot 10^{-4} \text{ mol}^3/\text{l}^3$

$$[\text{Pb}^{2+}] = \sqrt[3]{\frac{2,4 \cdot 10^{-4}}{4}} = 3,915 \cdot 10^{-2} \text{ mol/l} \approx \mathbf{3,9 \times 10^{-2} \text{ mol/l}}$$

b) $[\text{Br}^-]^2 \cdot 3,915 \cdot 10^{-2} \text{ mol/l} = 7,4 \cdot 10^{-5} \text{ mol}^3/\text{l}^3$

$$[\text{Br}^-] = \sqrt{\frac{7,4 \cdot 10^{-5}}{3,915 \cdot 10^{-2}}} = 4,35 \cdot 10^{-2} \text{ mol/l} \approx \mathbf{4,4 \times 10^{-2} \text{ mol/l}}$$

c) $n(\text{CaBr}_2) = \frac{0,0435 \text{ mol/l} \cdot 1,5 \text{ l}}{2} = 0,0326 \text{ mol} \approx \mathbf{0,033 \text{ mol}}$

6. a) i) $M_r(\text{E}) = \frac{1,01}{0,0045} = 224,44$

$$M_r(\text{XY}_2) = 224,44 - 1,01 = 223,43$$

$$A_r(\text{X}) = 223,43 \cdot 0,2845 \approx \mathbf{63,5}$$

ii) $M_r(\text{Y}_2) = 223,43 \cdot (1 - 0,2845) = 159,86$

$$A_r(\text{Y}) = \frac{159,86}{2} \approx \mathbf{79,9}$$

b) X – Cu, vasek

C – PH₃

Y – Br, broom

D – H₃PO₄

A – HPO₃

E – HCuBr₂

B – P₄O₁₀

c) NaF + H₂SO₄(kants) = NaHSO₄ + HF

NaCl + H₂SO₄(kants) = NaHSO₄ + HCl

d) i) $2\text{NaBr} + 3\text{H}_2\text{SO}_4(\text{kants}) = 2\text{NaHSO}_4 + \text{Br}_2 + \text{SO}_2 + 2\text{H}_2\text{O}$

ii) $2\text{Cu} + 4\text{HBr}(\text{kants}) = 2\text{HCuBr}_2 + \text{H}_2 \uparrow$

iii) $4\text{PH}_3 + 8\text{O}_2 = \text{P}_4\text{O}_{10} + 6\text{H}_2\text{O}$

iv) $\text{P}_4 + 10\text{Br}_2 + 12\text{H}_2\text{O} = 4\text{HPO}_3 + 20\text{HBr}$

v) $\text{P}_4\text{O}_{10} + 6\text{H}_2\text{O} = 4\text{H}_3\text{PO}_4$