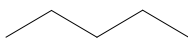
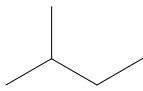
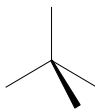


11. klass

1. a)  *n*-pentaan; *n*-пентан (1)
-  2-metüülbutaan; 2-метилбутан (1)
-  2,2-dimetüülpropaan; 2,2-диметилпропа (1)
- b) *n*-pentaan 36 °C, 2-metüülbutaan 27 °C ja 2,2-dimetüülpropaan 9 °C. (3)
- c) i) $C_5H_{12} + 8O_2 = 5CO_2 + 6H_2O$ (1)
- ii) $C_5H_{12} + Br_2 = C_5H_{11}Br + HBr$ (1)
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2. a) Soolad **D** ja **E** peavad olema sulfaadid.

Molekul XSO_4 $M(D) = 32 \text{ g/mol} \times \frac{1}{0,245} = 130,6 \text{ g/mol}$

$M(X) = (130,6 - 96,1) \text{ g/mol} = 34,5 \text{ g/mol}$ (ei sobi)
Ka X_2SO_4 ei sobi, sest siis on $M(X) = 17,3 \text{ g/mol}$

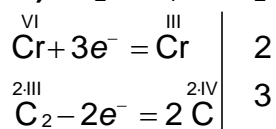
Molekul $X_2(SO_4)_3$ $M(D) = 3 \times 32 \text{ g/mol} \times \frac{1}{0,245} = 392 \text{ g/mol}$

$M(X) = \frac{1}{2} \times (392 - 3 \cdot 96) \text{ g/mol} = 52 \text{ g/mol}$ (kroom; хром) (1)

Molekul Y_2SO_4 $M(E) = 32 \text{ g/mol} \times \frac{1}{0,184} = 174 \text{ g/mol}$

$M(Y) = \frac{1}{2} \times (174 - 96) \text{ g/mol} = 39 \text{ g/mol}$ (kaalium; калий) (1)

- b) **A** – H_2SO_4 , väävelhape; серная кислота (1)
B – K_2CrO_4 , kaaliumkromaat; хромат калия (1)
C – CO_2 , süsinikoksiid; диоксид углерода (1)
D – $Cr_2(SO_4)_3$, kroom(III)sulfaat; сульфат хрома (III) (1)
E – K_2SO_4 , kaaliumsulfaat; сульфат калия (1)
- c) i) $CO_2 + Ca(OH)_2 = CaCO_3 + H_2O$ (1)
ii) $CaCO_3 + H_2O + CO_2 = Ca(HCO_3)_2$ (1)
iii) $2K_2CrO_4 + 5H_2SO_4 + 3H_2C_2O_4 = 2K_2SO_4 + Cr_2(SO_4)_3 + 6CO_2 + 8H_2O$ (2)



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3. a) i) $n(CuSO_4) = \frac{500 \text{ g}}{249,5 \text{ g/mol}} = 2,00 \text{ mol}$ (1)
- ii) $n(Ca(OH)_2) = \frac{500 \text{ g}}{74,1 \text{ g/mol}} = 6,75 \text{ mol}$ (1)
- b) i) $2CuSO_4 + Ca(OH)_2 = (CuOH)_2SO_4 + CaSO_4$ (1)

$$\text{ii) } m((\text{CuOH})_2\text{SO}_4) = \frac{1}{2} \times 2 \text{ mol} \times 257 \frac{\text{g}}{\text{mol}} = 257 \text{ g} \quad (1)$$

$$m(\text{CaSO}_4) = \frac{1}{2} \times 2 \text{ mol} \times 136 \frac{\text{g}}{\text{mol}} = 136 \text{ g} \quad (1)$$

$$m(\text{Ca}(\text{OH})_2) = (6,75 - 1,00) \text{ mol} \times 74,1 \text{ g/mol} = 426 \text{ g} \quad (1)$$

c) i)

$$m(\text{H}_2\text{O}) = 25000 \text{ cm}^3 \times 1,00 \frac{\text{g}}{\text{cm}^3} + 2 \text{ mol} \times 5 \times 18 \frac{\text{g}}{\text{mol}} = 25180 \text{ g} \quad (1)$$

$$\omega(\text{H}_2\text{O}) = \frac{25180 \text{ g}}{25180 \text{ g} + 2 \text{ mol} \times 160 \frac{\text{g}}{\text{mol}}} \times 100\% = 99\% \quad (1)$$

$$\text{ii) } \omega(\text{H}_2\text{O}) = \frac{25000 \text{ g}}{25000 \text{ g} + 500 \text{ g}} \times 100\% = 98\% \quad (1)$$

