

Exercice 130C

$$N = n \cdot N_A$$

$$\frac{N}{N_A} = n$$

a. $n = \frac{12,05 \cdot 10^{22}}{6,02 \cdot 10^{23}} = 0,200 \text{ mol}$ b. $n = \frac{6,02 \cdot 10^{21}}{6,02 \cdot 10^{23}} = 0,0100 \text{ mol}$

Exercice 131C

$$N = n \cdot N_A$$

- a. $N = 4,5 \times 6,02 \cdot 10^{23} = 2,7 \cdot 10^{24}$ entités
b. $N = 3,0 \times 6,02 \cdot 10^{23} = 1,8 \cdot 10^{24}$ entités
c. $N = 60 \cdot 10^{-6} \times 6,02 \cdot 10^{23} = 3,6 \cdot 10^{19}$ entités

Exercice 132C

a. $M(\text{Co}) = 58,9 \text{ g/mol}$ $M(\text{P}) = 31 \text{ g/mol}$

b. $n = \frac{m}{M} = \frac{30}{27} = 1,1 \text{ mol}$

$$N = n \cdot N_A = 1,1 \times 6,02 \cdot 10^{23} = 6,7 \cdot 10^{23} \text{ atomes}$$

c. $N = n \cdot N_A$

$$n = \frac{N}{N_A} = \frac{9,5 \cdot 10^{24}}{6,02 \cdot 10^{23}} = 16 \text{ mol}$$

$$m = n \cdot M = 15,8 \times 23,0 = 363 \text{ g}$$

d. $n = \frac{m}{M} = \frac{0,050}{107,9} = 4,6 \cdot 10^{-4} \text{ mol}$

$$N = n \cdot N_A = 4,63 \cdot 10^{-4} \times 6,02 \cdot 10^{23} = 2,79 \cdot 10^{20} \text{ atomes}$$

d. $m = n \cdot M = 0,84 \times 238 = 200 \text{ g}$

Exercice 133C

1.a. $M(\text{KMnO}_4) = 39,1 + 54,9 + 4 \times 16 = 158 \text{ g/mol}$

1.b. $M(\text{Mg}_3(\text{OH})_2\text{Si}_4\text{O}_{10}) = 3 \times M(\text{Mg}) + 12 \times M(\text{O}) + 2 \times M(\text{H}) + 4 \times M(\text{Si})$
 $= 3 \times 24,3 + 12 \times 16 + 2 \times 1 + 4 \times 28,1$
 $= 379,3 \text{ g/mol}$

2. $n = \frac{m}{M} = \frac{3000}{158} = 19,0 \text{ mol}$

$$n = \frac{m}{M} = \frac{3000}{379,3} = 7,90 \text{ mol}$$

3. $M(\text{CO}_3^{2-}) = 12 + 3 \times 16 = 60 \text{ g/mol}$