

STOICHIOMETRIE

woensdag 1 december 2021 13:28

1. Formules

$$M = \frac{m}{n} = \text{som atoommassa's} \quad \left[M = \frac{g}{\text{mol}} \right]$$

$$n = \frac{m}{M} = \frac{N}{n} = C_n \cdot V$$

$$m = n \cdot M$$

$$N = n \cdot N_A$$

$$C_m = \frac{m}{V} \quad \left[\frac{g}{l} \right]$$

$$C_n = \frac{n}{V} \quad \left[\frac{\text{mol}}{l} \right]$$

$$C_v = \frac{V_{\text{stof}}}{V_{\text{oplossing}}}$$

$$\rho \cdot V = R \cdot n \cdot T \quad \begin{array}{l} \text{met T in Kelvin} \\ \text{P in Pascal} \\ \text{V in } m^3 \end{array}$$

$$\rho = \frac{m}{V} \quad \left[\frac{kg}{m^3} \right]$$

$$m\% = \frac{m_{\text{stof}}}{m_{\text{oplossing}}} \cdot 100$$

$$V\% = \frac{V_{\text{stof}}}{V_{\text{oplossing}}} \cdot 100$$

$$\%_0 = \frac{m_{\text{opgeloste stof}}}{m_{\text{oplossing}}} \cdot 10^3 = \frac{V_{\text{opgesloste stof}}}{V_{\text{oplossing}}} \cdot 10^3 = \frac{N_{\text{opgesloste stof}}}{N_{\text{oplossing}}} \cdot 10^3$$

$$Ppm = \frac{m_{\text{opgeloste stof}}}{m_{\text{oplossing}}} \cdot 10^6 = \frac{V_{\text{opgesloste stof}}}{V_{\text{oplossing}}} \cdot 10^6 = \frac{N_{\text{opgesloste stof}}}{N_{\text{oplossing}}} \cdot 10^6$$

$$Ppb = \frac{m_{\text{opgeloste stof}}}{m_{\text{oplossing}}} \cdot 10^9 = \frac{V_{\text{opgesloste stof}}}{V_{\text{oplossing}}} \cdot 10^9 = \frac{N_{\text{opgesloste stof}}}{N_{\text{oplossing}}} \cdot 10^9$$

3. Getallen omzetten

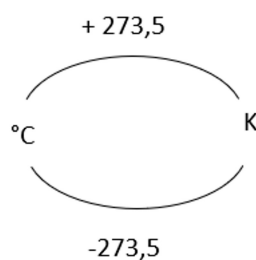
$$hPa = \cdot 10^2 Pa \quad \text{vb } 30 hPa = 3000 Pa$$

$$Kg = g \cdot 10^3$$

$$1 bar = 100\,000 Pa$$

$$1 atm = 101325 Pa$$

$$m^3 = l \cdot 10^{-3}$$



2. Vaste getallen

$$g = 9,81$$

$$\text{Luchtdruk} = 1300 hPa = 130000 Pa$$

$$\text{Lichtsnelheid: } 3000 \frac{km}{u}$$

$$R = 8,314 \frac{J}{\text{mol} \cdot K}$$

$$N_A = 6,022 \cdot 10^{23} \text{ mol}^{-1}$$

N = het aantal deeltjes