

Units of Concentration

Molarity

$$M = \frac{\text{moles of solute}}{\text{volume of solution (liters)}}$$

Molality

$$m = \frac{\text{moles of solute}}{\text{mass of solvent (kg)}}$$

Percent by mass

$$\% = \frac{\text{mass of solute}}{\text{mass of solution}} \times 100$$

Mole fraction

$$\chi_A = \frac{\text{moles of A}}{\text{moles of A} + \text{moles of B} + \text{moles of C} + \dots}$$

Parts per million

$$ppm = \frac{\text{mass of solute}}{\text{total mass of solution}} \times 1000000$$