Molarity

Molarity (M): the number of moles of solute per liter of solvent

Units: M ex: 3.0 M is "3 molar"

Mm3m

molarity (M) = $\frac{\text{moles of solute}}{\text{L of solvent}}$

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Molality

Molality (m): the number of moles of solute per kilogram of solvent

Units: m ex: 3.0 m is "3 molal"

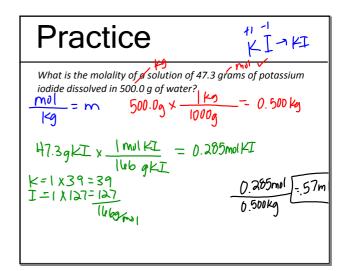
molality (m) = $\frac{\text{moles of solute}}{\text{kg of solvent}}$

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Conversion Info:

- 1000 mL = 1 L
- 1000g = 1 kg
- 1 mL of water = 1 g of water

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Percent by Mass

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Percent by Volume

 $\frac{\text{volume of solute}}{\text{volume of solution}} \times 100$ Example:

What is the percent by volume of ethanol (C $_2\text{H}_5\text{OH}$) in

a solution that contains 35 mL of ethanol dissolved in 155 mL of water?

35mL ×100% = 18% C2H30H by volume

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Practice

What is the percent by volume of isopropyl alcohol in a solution that contains 24 mL of isopropyl alcohol in 1.1 L of water?

24mLx 11 = .024L

-.024L × 100% = 2.1% iso. by wol.

Practice

What is the percent by mass of NaHCO₃ in a solution containing 20.0 g of NaHCO₃ dissolved in 600.0 mL of H_2O ?

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