CONCEPT: MOLALITY

Molality is depicted as moles of solute per kilograms of solvent:

$$\text{Molality} = \frac{\text{Moles of solute}}{\text{kg of solvent}}$$

In the same way we can expand molarity the same approach can be applied to molality:

$$0.30 \text{ m NaCl} = \frac{0.30 \text{ mole NaCl}}{1 \text{ kg of solvent}}$$

EXAMPLE: A solution is prepared by dissolving 43.0 g potassium chlorate, $KClO_3$, in enough water to make 100.0 mL of solution. If the density of the solution is 1.760 g/mL, what is the molality of $KClO_3$ in the solution? MW of $KClO_3$ is 122.55 g/mol.

EXAMPLE: If the molality of glucose, $C_6H_{12}O_6$, in an aqueous solution is 2.56 what is the molarity? Density of the solution is 1.530 g/mL.

PRACTICE: What is the mass percent of NH_3 of a 1.25 m aqueous solution of NH_3?