Mole-Mass and Mole-Volume Relationships

Suppose you need 3.00 mol of sodium chloride (NaCl) for a laboratory experiment.

If we knew the weight of NaCl per 1.00 mole, we could then find out how much mass we need for 3.00 moles.

$$\text{mass (grams)} = \#\text{ of moles} \times \frac{\text{mass(g)}}{1\text{ mole}}$$

Finding the number of grams for 3.00 moles can then be calculated.

mass (g) NaCl =

Example:

Aluminum oxide helps prevent corrosion when applied to surfaces. What is the mass of 9.45 mol of aluminum oxide?

What if we were given the number of moles and asked to find out how much it weighed?

Suppose we had to convert 10.0 grams of Na_2SO_4 into moles.

$$\text{moles} = \text{mass (g)} \times \frac{1 \text{ mole}}{\text{molar mass (g)}}$$

moles Na_2SO_4 =

Example:

How many moles of iron (III) oxide are contained in 92.2 g?

Handout Sheet on Moles, Grams, and Particles