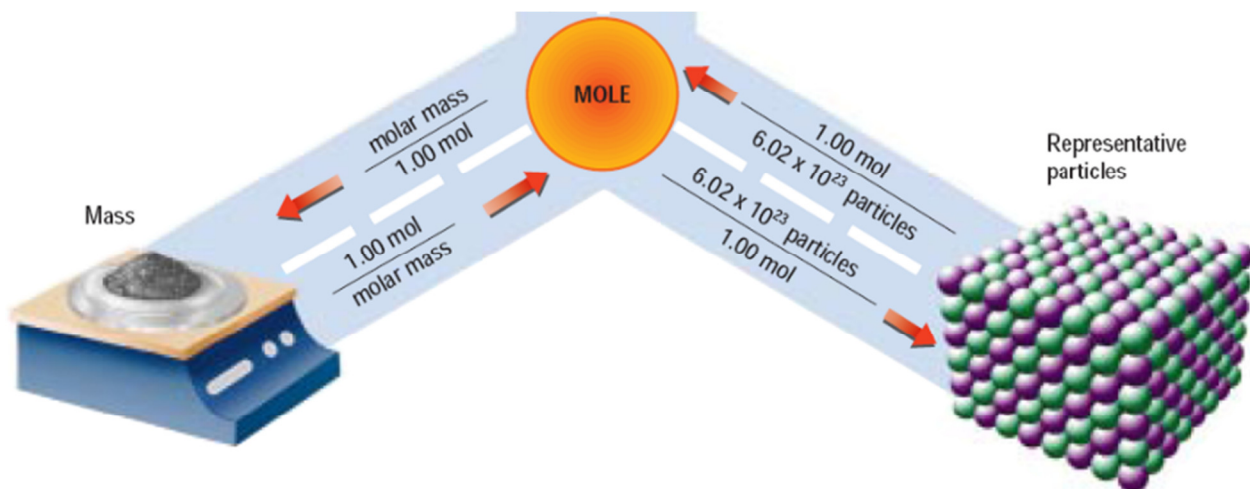


Mole Conversion Practice



Show all work on separate paper:

1. Find the number of moles in each of the following masses.

a. 64.1 g of Al

$$\frac{64.1 \text{ g Al}}{26.982 \text{ g Al}} \left| \frac{1 \text{ mol Al}}{1} \right. = 2.38 \text{ mol Al}$$

b. 28.1 g of silicon

$$\frac{28.1 \text{ g Si}}{28.086 \text{ g Si}} \left| \frac{1 \text{ mol Si}}{1} \right. = 1.00 \text{ mol Si}$$

c. 56.2 g of silicon

$$\frac{56.2 \text{ g Si}}{28.086 \text{ g Si}} \left| \frac{1 \text{ mol Si}}{1} \right. = 2.00 \text{ mol Si}$$

d. 0.255 g of sulfur

$$\frac{0.255 \text{ g S}}{32.066 \text{ g S}} \left| \frac{1 \text{ mol S}}{1} \right. = 0.0100 \text{ mol S}$$

2. Find the mass of each of the following elements:

a. 1.22 mol sodium

$$\frac{1.22 \text{ mol Na}}{1 \text{ mol Na}} \left| \frac{22.990 \text{ g Na}}{1} \right. = 28.1 \text{ g Na}$$

Find the mass (cont.)

b. 2.44 mol sodium

$$\frac{2.44 \text{ mol Na} \left| \begin{array}{l} 22.990 \text{ g Na} \\ 1 \text{ mol Na} \end{array} \right.}{1 \text{ mol Na}} = 56.1 \text{ g Na}$$

c. 14.5 mol copper

$$\frac{14.5 \text{ mol Cu} \left| \begin{array}{l} 63.546 \text{ g Cu} \\ 1 \text{ mol Cu} \end{array} \right.}{1 \text{ mol Cu}} = 921 \text{ g Cu}$$

d. 9.37×10^{-3} mol magnesium

$$\frac{9.37 \times 10^{-3} \text{ mol Mg} \left| \begin{array}{l} 24.305 \text{ g Mg} \\ 1 \text{ mol Mg} \end{array} \right.}{1 \text{ mol Mg}} = 0.228 \text{ g Mg}$$

3. Find the number of moles:

a. 3.01×10^{23} atoms of rubidium

$$\frac{3.01 \times 10^{23} \text{ atoms Rb} \left| \begin{array}{l} 1 \text{ mol Rb} \\ 6.022 \times 10^{23} \text{ atoms Rb} \end{array} \right.}{6.022 \times 10^{23} \text{ atoms Rb}} = 0.500 \text{ mol Rb}$$

b. 8.08×10^{22} atoms of krypton

$$\frac{8.08 \times 10^{22} \text{ atoms Kr} \left| \begin{array}{l} 1 \text{ mol Kr} \\ 6.022 \times 10^{23} \text{ atoms Kr} \end{array} \right.}{6.022 \times 10^{23} \text{ atoms Kr}} = 0.134 \text{ mol Kr}$$

4. Find the number of atoms:

a. 1.004 mol bismuth

$$\frac{1.004 \text{ mol Bi} \left| \begin{array}{l} 6.022 \times 10^{23} \text{ atoms Bi} \\ 1 \text{ mol Bi} \end{array} \right.}{1 \text{ mol Bi}} = 6.046 \times 10^{23} \text{ atoms Bi}$$

b. 2.5 mol manganese

$$\frac{2.5 \text{ mol Mn} \left| \begin{array}{l} 6.022 \times 10^{23} \text{ atoms Mn} \\ 1 \text{ mol Mn} \end{array} \right.}{1 \text{ mol Mn}} = 1.5 \times 10^{24} \text{ atoms Mn}$$

c. 54.0 g aluminum

$$\frac{54.0 \text{ g Al} \left| \begin{array}{l} 1 \text{ mol Al} \\ 26.982 \text{ g Al} \end{array} \right. \left| \begin{array}{l} 6.022 \times 10^{23} \text{ atoms Al} \\ 1 \text{ mol Al} \end{array} \right.}{26.982 \text{ g Al} \left| \begin{array}{l} 1 \text{ mol Al} \\ 1 \text{ mol Al} \end{array} \right.}} = 1.21 \times 10^{24} \text{ atoms Al}$$

d. 69.45 g lanthanum

$$\frac{69.45 \text{ g La} \left| \begin{array}{l} 1 \text{ mol La} \\ 138.905 \text{ g La} \end{array} \right. \left| \begin{array}{l} 6.022 \times 10^{23} \text{ atoms La} \\ 1 \text{ mol La} \end{array} \right.}{138.905 \text{ g La} \left| \begin{array}{l} 1 \text{ mol La} \\ 1 \text{ mol La} \end{array} \right.}} = 3.01 \times 10^{23} \text{ atoms La}$$