

Chemistry 11  
Mole III Check Point

✓ Molar Mass

Name: *Key*  
Date:  
Block:

1. Consider sodium chloride

a. What is the molar mass of sodium chloride? *NaCl*

$$(1 \times 22.99) + (1 \times 35.45) \\ = 58.44 \text{ g/mol NaCl}$$

b. What does 2.65 mol of sodium chloride weigh?

$$2.65 \text{ mol NaCl} \times \frac{58.44 \text{ g}}{1 \text{ mol}} = 154.86 \\ = 155 \text{ g NaCl}$$

2. Consider ammonium phosphate. *(NH<sub>4</sub>)<sub>3</sub>PO<sub>4</sub>*

a. What is the molar mass of ammonium phosphate?

$$(3 \times 14.01) + (12 \times 1.01) + (1 \times 30.97) + (4 \times 16.00) \\ = 149.12 \text{ g/mol (NH}_4)_3\text{PO}_4$$

b. How many moles of ammonium phosphate are in a bag that weighs 2.640 kg?

$$2.640 \text{ kg} \times \frac{1000 \text{ g}}{1 \text{ kg}} \times \frac{1 \text{ mol}}{149.12 \text{ g}} = 17.70 \text{ mol (NH}_4)_3\text{PO}_4$$

3. How many carbon atoms are in 72.6g of propane (C<sub>3</sub>H<sub>8</sub>)?

$$72.6 \text{ g C}_3\text{H}_8 \times \frac{1 \text{ mol}}{44.11 \text{ g}} \times \frac{6.022 \times 10^{23} \text{ molecules}}{1 \text{ mol}} \times \frac{3 \text{ carbon atoms}}{1 \text{ molecule}} \\ = 2.97 \times 10^{24} \text{ Carbon atoms}$$