

Grams/Moles Calculations

Given the following, find the number of moles:

- 1) 30 grams of
- H_3PO_4

$$\left(\frac{30 \text{ g } \text{H}_3\text{PO}_4}{1} \right) \left(\frac{1 \text{ mole } \text{H}_3\text{PO}_4}{98.0 \text{ g } \text{H}_3\text{PO}_4} \right) = .3 \text{ mole } \text{H}_3\text{PO}_4$$

- 2) 25 grams of HF

$$\left(\frac{25 \text{ g } \text{HF}}{1} \right) \left(\frac{1 \text{ mole } \text{HF}}{20.0 \text{ g } \text{HF}} \right) = 1.3 \text{ mole } \text{HF}$$

- 3) 110 grams of
- NaHCO_3

$$\left(\frac{110 \text{ g } \text{NaHCO}_3}{1} \right) \left(\frac{1 \text{ mole } \text{NaHCO}_3}{84.0 \text{ g } \text{NaHCO}_3} \right) = 1.3 \text{ mole } \text{NaHCO}_3$$

- 4) 1.1 grams of
- FeCl_3

$$\left(\frac{1.1 \text{ g } \text{FeCl}_3}{1} \right) \left(\frac{1 \text{ mole } \text{FeCl}_3}{162.4 \text{ g } \text{FeCl}_3} \right) = .0068 \text{ mole } \text{FeCl}_3$$

- 5) 987 grams of
- Ra(OH)_2

$$\left(\frac{987 \text{ g } \text{Ra(OH)}_2}{1} \right) \left(\frac{1 \text{ mole } \text{Ra(OH)}_2}{260.0 \text{ g } \text{Ra(OH)}_2} \right) = 3.80 \text{ mole } \text{Ra(OH)}_2$$

- 6) 564 grams of copper

$$\left(\frac{564 \text{ g } \text{Cu}}{1} \right) \left(\frac{1 \text{ mole } \text{Cu}}{63.6 \text{ g } \text{Cu}} \right) = 8.87 \text{ mole } \text{Cu}$$

- 7) 12.3 grams of
- CO_2

$$\left(\frac{12.3 \text{ g } \text{CO}_2}{1} \right) \left(\frac{1 \text{ mole } \text{CO}_2}{44.0 \text{ g } \text{CO}_2} \right) = .280 \text{ mole } \text{CO}_2$$

- 8) 89 grams of
- $\text{Pb(CH}_3\text{COO)}_4$

$$\left(\frac{89 \text{ g } \text{Pb(CH}_3\text{COO)}_4}{1} \right) \left(\frac{1 \text{ mole } \text{Pb(CH}_3\text{COO)}_4}{443.2 \text{ g } \text{Pb(CH}_3\text{COO)}_4} \right) = .20 \text{ mole } \text{Pb(CH}_3\text{COO)}_4$$

Given the following, find the number of grams:

9) 4 moles of $\text{Cu}(\text{CN})_2$
$$\left(\frac{4 \text{ mole } \text{Cu}(\text{CN})_2}{1} \right) \left(\frac{115.6 \text{ g } \text{Cu}(\text{CN})_2}{1 \text{ mole } \text{Cu}(\text{CN})_2} \right) = 500 \text{ g } \text{Cu}(\text{CN})_2$$

10) 5.6 moles of C_6H_6
$$\left(\frac{5.6 \text{ mole } \text{C}_6\text{H}_6}{1} \right) \left(\frac{78.0 \text{ g } \text{C}_6\text{H}_6}{1 \text{ mole } \text{C}_6\text{H}_6} \right) = 440 \text{ g } \text{C}_6\text{H}_6$$

11) 21.3 moles of BaCO_3
$$\left(\frac{21.3 \text{ mole } \text{BaCO}_3}{1} \right) \left(\frac{197.3 \text{ g } \text{BaCO}_3}{1 \text{ mole } \text{BaCO}_3} \right) = 4200 \text{ g } \text{BaCO}_3$$

12) 1.2 moles of $(\text{NH}_4)_3\text{PO}_3$
$$\left(\frac{1.2 \text{ mole } (\text{NH}_4)_3\text{PO}_3}{1} \right) \left(\frac{133.0 \text{ g } (\text{NH}_4)_3\text{PO}_3}{1 \text{ mole } (\text{NH}_4)_3\text{PO}_3} \right) = 160 \text{ g } (\text{NH}_4)_3\text{PO}_3$$

13) 9.3×10^{-3} moles of SmO
$$\left(\frac{9.3 \times 10^{-3} \text{ moles } \text{SmO}}{1} \right) \left(\frac{166.4 \text{ g } \text{SmO}}{1 \text{ mole } \text{SmO}} \right) = 1.5 \text{ g } \text{SmO}$$

14) 6.6 moles of ZnO
$$\left(\frac{6.6 \text{ mole } \text{ZnO}}{1} \right) \left(\frac{81.4 \text{ g } \text{ZnO}}{1 \text{ mole } \text{ZnO}} \right) = 540 \text{ g } \text{ZnO}$$

15) 5.4 moles of K_2SO_4
$$\left(\frac{5.4 \text{ mole } \text{K}_2\text{SO}_4}{1} \right) \left(\frac{174.3 \text{ g } \text{K}_2\text{SO}_4}{1 \text{ mole } \text{K}_2\text{SO}_4} \right) = 940 \text{ g } \text{K}_2\text{SO}_4$$

16) 88.4 moles of NI_3
$$\left(\frac{88.4 \text{ mole } \text{NI}_3}{1} \right) \left(\frac{394.7 \text{ g } \text{NI}_3}{1 \text{ mole } \text{NI}_3} \right) = 34900 \text{ g } \text{NI}_3$$