

4. Calculate the grams of sulfur hexafluoride in 4.67×10^{28} molecules of sulfur hexafluoride. (S = 32.1 g/mol, F = 19.0g/mol)

5. Complete the following for the reaction between an aqueous potassium carbonate solution and hydrobromic acid. Any potassium containing product is aqueous. You should know what to do with everything else! All phases must be shown in the molecular equation.

a. Balanced Molecular Equation

b. Balanced Net Ionic Equation

6. Write the balanced single replacement reaction when liquid chlorine reacts with aqueous potassium bromide. Assume a reaction occurs.

7. A 50.6 g sample of $\text{Mg}(\text{OH})_2$ is reacted with 45.0 g of HCl according to the reaction: $\text{Mg}(\text{OH})_2 + 2 \text{HCl} \rightarrow \text{MgCl}_2 + 2 \text{H}_2\text{O}$.

($\text{Mg}(\text{OH})_2 = 58.3197 \text{ g/mol}$, $\text{HCl} = 36.46 \text{ g/mol}$, $\text{H}_2\text{O} = 18.0 \text{ g/mol}$)

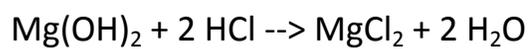
a. Calculate the theoretical yield of water produced. (a calculation must be shown for each reactant)

b. Who is the limiting reactant?

c. Calculate the mass of excess reactant USED.

d. Calculate the mass of excess reactant LEFTOVER.

8. Calculate the mass in grams of magnesium chloride (95.2g/mol) produced from the reaction of 15.0mL of a 6.0M HCl solution with excess magnesium hydroxide, given:



9. Determine the empirical formula given the following: 0.89 grams of potassium, 1.18 grams of chromium, and 1.27 grams of oxygen.