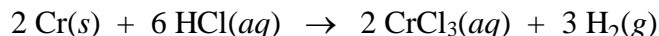


Chapters 8 & 9 Study Questions

- Sodium carbonate and iron(III) chloride react to form a precipitate.
 - Write a balanced molecular equation for this reaction.
 - Write a balanced complete ionic equation for this reaction.
 - Write a balanced net ionic equation for this reaction.
- Using a solubility table, decide whether a precipitate will form when the following solutions are mixed. If a precipitate forms, write a net ionic equation for the reaction.
 - iron(III) nitrate and potassium hydroxide
 - ammonium chloride and lithium carbonate
 - sodium sulfide and nickel(II) sulfate
- For each of the following equations
 - indicate whether it is a combustion (C), synthesis (S), decomposition (D), single replacement (SR), or double displacement (DD)
 - indicate which reactions are oxidation-reductions (OR), precipitations (P) or acid-base (AB) reactions.
 - predict the products and record their formulas. If no reaction occurs, write "NR."
(Use Tables as needed to help you decide if a reaction occurs.)
 - balance the equation.

a) $\text{Li}(s) + \text{Cl}_2(g) \rightarrow$	b) $\text{Sr}(\text{NO}_3)_2(aq) + \text{K}_2\text{SO}_4(aq) \rightarrow$
c) $\text{C}_3\text{H}_6(g) + \text{O}_2(g) \rightarrow$	d) $\text{CaCl}_2(aq) + \text{NaNO}_3(aq) \rightarrow$
e) $\text{Fe}(s) + \text{MgSO}_4(aq) \rightarrow$	f) $\text{KI}(l) \rightarrow$
g) $\text{Al}(s) + \text{HCl}(aq) \rightarrow$	h) $\text{HNO}_3(aq) + \text{KOH}(aq) \rightarrow$

- Write a chemical equation for the ionization of iron(III) nitrate when it dissolves in water.
- Chromium reacts with hydrochloric acid in a single replacement reaction. The balanced equation is:



- How many moles of HCl are needed to produce 1.60 moles of CrCl_3 ?
- How many grams of chromium are required to react with 0.450 moles of HCl?
- How many atoms of chromium are required to produce 12 moles of H_2 ?
- How many grams of Cr are needed to produce 3.20 g H_2 ?
- In an experiment, 10.2 grams of CrCl_3 are produced starting from 8.30 grams of HCl. What was the theoretical yield and the percent yield in this experiment?
- When 6.0 moles of Cr are combined with 12.0 moles of HCl, which reactant is limiting? How many moles of excess reactant are left over?
- How many grams of CrCl_3 are produced starting from 13.0 g of Cr and 43.8 g of HCl?

Summary of Chapter 8: Reactions in Aqueous Solutions

- predicting whether a reaction will occur
- precipitation reactions
 - strong electrolytes
 - using a solubility table
 - predicting whether a precipitate occurs
 - writing equations for precipitation reactions
 - molecular equations
 - complete ionic equations
 - net ionic equations
 - acids, bases
 - acid-base reactions
 - common strong acids
 - common strong bases
- double displacement reactions
 - precipitation reactions
 - acid-base reactions
- oxidation-reduction reactions
 - synthesis (combination)
 - decomposition
 - combustion reactions
 - single replacement reactions

Summary of Chapter 9: Chemical Quantities

- interpreting balanced chemical equations
- stoichiometric calculations:
 - mole relationships between reactants and products
 - mass relationships between reactants and products
- limiting reactant
- theoretical yield
- experimental yield
- calculating percent yield