

Honors Chemistry: Stoichiometry 5 Problem Set- Molar Mass of Unknown Metals

1. 2.35-g of metal with a charge of 2+ reacts with hydrochloric acid to produce 0.598 L of gas at STP. What metal do you have?
2. Ammonium phosphate reacts with 0.0345-g of a metal sulfate to produce 0.0399-g of ammonium sulfate. The metal has an oxidation state of +3. Find the molar mass of the metal and identify the metal.
3. 3.45-g of a metal hydroxide with an oxidation state of +1 reacts with excess iron(III) chloride to make 0.82-g of iron(III) hydroxide. What is the identity of the metal hydroxide?
4. 30.2 L of oxygen gas is produced at STP when 135.9-g of metal chlorate of charge 3+ decomposes into oxygen gas and the metal chloride. What is the identity of the metal chlorate?