

Micro Mole Rocket Project

Follow-Up Questions

- Write the balanced chemical equation for the single-replacement reaction of zinc and hydrochloric acid to generate hydrogen gas. What is the total amount (in liters) of hydrogen gas that could be produced with 5.00 grams of zinc? You can assume you have an unlimited amount of hydrochloric acid?
- Write the balanced chemical equation for the yeast-catalyzed decomposition of hydrogen peroxide to generate oxygen gas and water. Note: Since a catalyst is not really a -reactant or product, it is usually written over the arrow. What is the total amount of oxygen gas that will be produced (in liters) if you started with 15 grams of hydrogen per oxide?
- Why is the ratio of the volumes of oxygen and hydrogen gas used in this project equivalent to the ratio of the number of moles of oxygen and hydrogen within your rocket?
- Write a balanced chemical equation for the combustion reaction of hydrogen and oxygen to give water.
- When the reactants in a mixture are present in the exact mole ratio given by the balanced chemical equation, all of the reactants should be used up when the reaction is over. There will be no "leftover" reactants. However, if one of the reactants is present in an amount greater than its mole ratio, then that reactant cannot react completely, and some of it will be left over at the end of the reaction. Use the mole ratio of hydrogen to oxygen from the previous question to determine what happens when various hydrogen/oxygen gas mixtures are allowed to burn. Complete the following table to indicate which reactant (H_2 or O_2) is present in excess, and how much of it will be left over after the combustion reaction is complete. *Note:* The second one has been completed as an example.

Parts H_2	6	5	4	3	2	1	0
Parts O_2	0	1	2	3	4	5	6
Which reactant is present in excess?		H_2					
How much of that reactant is left over?		3					