

## Honors Chemistry: Gases Podcast 7 Problem Set

1. Solid potassium chlorate decomposes to produce solid potassium chloride and oxygen gas. What volume of oxygen gas, measured at 40°C and 655 mmHg, will be produced when 13.5 g of potassium chlorate is decomposed?

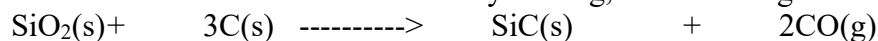
2. How many grams of water are produced when 500 L of hydrogen gas measured at 25°C and 0.97-atm is ignited with oxygen?

3. If 500 g of carbon disulfide burns in the presence of oxygen to produce carbon dioxide and sulfur dioxide, how many liters of sulfur dioxide collected over water measured at 27°C and 740-mmHg, are produced?

4. Write and balance the equation for cellular respiration. How many grams of  $C_6H_{12}O_6$  (s) will be needed to make 54 mL of  $CO_2$  at 550°C and 8 atm?

5. How many Liters of carbon dioxide is produced at 300 K and 744 torr when 43.65 grams of acetylene,  $C_2H_2$  is burned?

6. When silicon dioxide reacts with carbon by heating, the following reaction occurs:



What will be the volume of carbon monoxide collected over water will be produced at 22.0°C and 657mm when 96.25 grams of  $SiO_2$  completely reacts?

7. Nitroglycerine explodes violently to form several gasses according to the following equation:



A sealed 1.00 mL container filled with 2.8 g of nitroglycerine is detonated. If the temperature inside the container is 300°C and assuming that the container would not break upon detonation, what is the pressure inside the container right after detonation? (Put your answer in atm's)