

Some additional gases problems

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 1) A rigid 2.00 L reaction flask contains two reactant gases at a pressure of 769 torr at 25°C. To attain a pressure of 4.50 atm (the pressure the experiment should be conducted at), an inert gas such as argon can be added. How many moles of argon should be added to attain a pressure of 4.50 atm at 25°C? 1) _____

- 2) A U-tube (not to be confused with You-Tube) manometer has a $+\Delta P = 23.98$ cm when connected to a flask. If the air pressure in the room is 758.3 mmHg, what is the pressure of the gas in the flask? 2) _____

- 3) A 5.00 L flask contains nitrogen gas at a pressure of 776 mmHg at 25°C. If a 10.00 g piece of dry ice is added to the flask and it completely sublimates, what will the partial pressures of all gases be at 25°C? 3) _____

- 4) A 0.632 g sample of a metal alloy consisting of zinc and chromium is completely dissolved in HCl. If 275.0 mL of H₂ gas is collected (dry) at 27°C and 750.0 torr, what is the mass percent of each metal in the alloy? (assume chromium oxidizes to Cr³⁺) 4) _____

- 5) A 5.14 g sample of a BaO and CaO mixture is placed in a 1.50 L flask containing CO₂ at 30.0°C and 750.0 torr. After all of the solid reacts with CO₂ to form barium and calcium carbonates, the pressure of CO₂ is measured to be 230.0 torr. What are the mass percentages of BaO and CaO in the initial sample? (ignore the volume - and any volume changes - of the solid) 5) _____