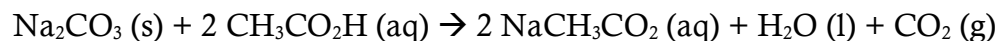
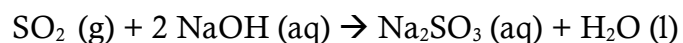


Chem 42 Test 4**Fall 2020***Practice Questions – Not meant to be a comprehensive review***Gases**

1. How many liters of CO₂ (at 25 °C, 1.00 atm pressure), will be produced when 155 g of CH₃CO₂H are reacted according to the equation below?



2. Scrubbers are used to clean exhaust gases from industrial processes. In the reaction below, the pollutant SO₂ is reacted with sodium hydroxide. How many liters of SO₂ (at 300 °C, 0.955 atm) can be neutralized by 1000. g NaOH?



Solutions

4. Calculate the molarity of a 250. mL solution containing 775 mg of calcium chloride.

5. How many grams of NaHCO_3 are dissolved in 3.50×10^{-3} L of a solution with concentration 2.50 mol/L?

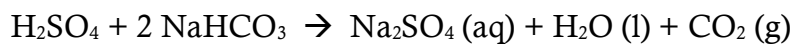
6. The concentration of fructose (180.16 g/mol) in a soft drink is around 0.610 mol/L.
 - a. How many grams of sugar are in a 500. mL bottle of this soda?

 - b. What is the concentration of the soft drink in % (w/v)?

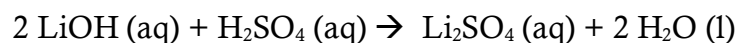
7. If 25 mL of a 6.0 mol/L solution of saltwater from lab is diluted to a volume of 200 mL, what is the new concentration?

8. If 0.2 mL of a Cu^{2+} solution is diluted to 25 mL, and the concentration is found to be 1.316 mg/L, what was the concentration of the copper before the dilution?

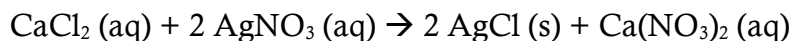
9. A swimming pool becomes contaminated with acid rain. If the concentration of sulfuric acid in the rain was 5.56×10^{-4} M, and 1460 L of rain fell in the pool, calculate the number of liters of 2.15 M sodium bicarbonate should be added to the pool to neutralize the acid.



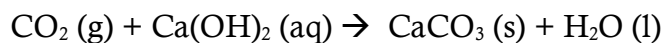
10. **Titration.** A student has a solution of lithium hydroxide, LiOH with unknown concentration. She finds that 22.52 mL of LiOH it is enough to react with exactly 15.63 mL of 0.108 mol/L H_2SO_4 . Find the concentration of the LiOH.



11. A 225 mL solution of 0.737 mol/L CaCl₂ is added to a 525 mL solution of 0.654 mol/L AgNO₃. How many grams of AgCl can be expected from the reaction?



12. **All together now:** *Limewater* is the common name for a solution of calcium hydroxide. Left out to the air, limewater absorbs carbon dioxide and precipitates calcium carbonate according to the reaction below.



1.50 L of carbon dioxide gas at 30 °C and a pressure of 1.05 atm are bubbled through a solution of calcium hydroxide with concentration of 0.0200 mol/L and volume 5.25 L. Calculate how many grams of CaCO₃ are expected to precipitate.