CHM 1142

Homework Set 6

TUD Department of Chemistry
Fall 2017

1) A 9.220 g sample of a white powder containing $AgNO_3$ and KNO_3 was dissolved in water. Aqueous HCl was added until no more AgCl precipitated. The AgCl was collected on a filter and dried. The mass of the AgCl was 1.059 g. What was the %Ag in the white powder?

2) In order to determine the concentration of acetic acid in vinegar, a 250.0 mL sample of the vinegar was diluted to 1000.0 mL. A 10.00 mL sample of the diluted vinegar was titrated with 0.1025 M NaOH. The titration required 33.22 mL of the base to reach the equivalence point. What was the concentration of acetic acid in the vinegar?

3) Write the oxidation number for vanadium in each of the species below:

VO^{2+} VO_2^{1+} VCl_2 VO_2

3) How many mL of concentrated HNO_3 (16 M) should be diluted to 5.00 L to give a 0.725 M HNO_3 solution?

4) Write net ionic equations for the reaction that occurs when aqueous solutions of the following are mixed:

a) mercurous nitrate and hydrochloric acid

b) sodium hydroxide and nitrous acid

c) barium nitrate and sodium sulfate

d) cupric nitrate and cesium hydroxide

e) lithium sulfide and zinc nitrate

f) potassium hydroxide and perchloric acid

g) barium acetate and sodium carbonate