CHM151 Q6 25 Pts Fall 2004 Name: Key
Information: mole = 6.02×10^{23} , molar masses: Ba = 137.33, Cl = 35.45, H = 1.01, O = 16.00, SHOW ALL WORK FOR CREDIT.
1. (4 Pts) What is the molarity of a barium chloride solution prepared by dissolving 2.50 g of BaCl ₂ ·2H ₂ O in enough water to make 400 mL of solution?
12.50 g mo 1 Ball-2111c / 1 mol - 00256 mo Ball_2
12.50 g mo 1 Ball-2111,0 mo 1 Ball-2111,0 Ball-2111,0
2. (5 Pts) What volume of 0.150 M AgNO $_3$ solution is required to react with 80.0 mL of 0.0660 M CaCl $_2$ solution according to the following reaction?
$2AgNO_3 + CaCl_2 \rightarrow 2AgCl + Ca(NO_3)_2$ $0.150mol 90.0mt,$
? mL 0.0660 mol Coyle 12 1200 1000 mL
2AgNO ₃ + CaCl ₂ \rightarrow 2AgCl + Ca(NO ₃) ₂ 0.150 mol co.0 mc 2 m L 80.0 mc aCl ₂ 0.0660 mol 1000 mc aCl ₂ 1 mol acl ₃ 3. (5 Pts) Witherite is a mineral that contains barium carbonate. If a 1.68-9 sample of witherite were to react completely with 24.6 mL of 0.2558 M HCl, what would be the
3. (5 Pts) Witherite is a mineral that contains barium carbonate. If a 1.68-9 sample of witherite were to react completely with 24.6 mL of 0.2558 M HCl, what would be the
percent of barium carbonate in the witherite sample? (Barium carbonate is the only compound present that reacts with the hydrochloric acid.)
compound present that reacts with the hydrochloric acid.) $BaCO_3 + 2HC1 \rightarrow BaCl_2 + CO_2 + H_2O$ $\begin{array}{cccccccccccccccccccccccccccccccccccc$
0.2558mol
24.6 mg 0.2558 not the 1 mot Buco3 111.549 Daco3 = 0.6208 gras 3
1000 m Ha 12 m Hall () 27 0 07
$\frac{24.6 \text{m/L}}{10.00 \text{m}} \frac{10.2558 \text{norther}}{10.00 \text{m}} \frac{1 \text{mot Baco}_3}{10.68} \times 100 = \frac{0.6208}{1.68} \times 100 = \frac{0.6208}{37.0\%}$
4. (5 Pts) What is the molarity of a barium hydroxide solution if 18.62 mL of this Ba(OH) ₂ solution requires 35.84 mL of 0.2419 M HCl for titration to the equivalence
point?35.48mL 18.62 m/L $0.24120000000000000000000000000000000000$
35.84 m/L 0.2419 mol 1 mol Ba(6H) ₂ = 0,2328 mol Ba(6H) ₂ 18.62 ×10-3 mL 1000 m/L 2 mol Httl Ba(6H) ₂ LBa(H) ₁
18.62 X103mL 1000ml 2 mol Httl
5. (6 Pts) Write Net Ionic Equations for each of the following. $A(A) = A(A) + A(A) $
5. (6 Pts) Write Net Ionic Equations for each of the following. a. KOH(aq) + HNO ₃ (aq)> H_2 O(e) + K NO ₃ (a.8) Strong Aug (R) + OH + H + (W) -> H_3 O(e) + K
WK and HF(1) + KOH -> H20/N+ KF(1) WK and HF(1) + (K+) OH -> H20/N + (K+) + F- (HF-1) + OH -> H20/N + F
c. Combining aqueous solutions of BaI ₂ and K_2SO_4 affords a precipitate of BaSO ₄ . Ba $F(x_1) + K_2SO_4$ (49) \longrightarrow BaSO ₄ (5) $+ 2KI(x_1)$
Baso4. Batien + K2so4 (19) \rightarrow Baso4 (5) + 2KI (4) But + (2I) + (2Kt) sax \rightarrow Baso4 (5) + (2Kt) (2I)
Ba2+ + S042> BaS04 (5)