VC211 EXPERIMENT E5 DATASHEET: PRECIPITATION & WATER PURITY

STDNT: **ID:** **SECTION#:** _____ **TA:**_____

GRP#:

PART 1: What is a precipitate. Each 2 studests tests 1 sample once

	$CuSO_4$ 5mL (0.1M) Color	$BaCl_2$ 5mL (0.1M) Color	$CuSO_4$ + $BaCl_2$ Color	ppt↓ Yes/No	Filtrate observed property
2students					
2students					

PART 2.A. ***Is Precipitation Predictable? Group efforts, test only Group I or Group II as assigned, 2 raw reactions/student. Clear = means no precipitate, then record solution color.***

CATION GROUP I	CATION GROUP II	REF WATER	Cl^- 2drops	CrO_4^{2-} 2drops	I^- 2drops	$C_2O_4^{2-}$ 2drops	S^{2-} 2drops	SO_4^{2-} 2drops	SPECTATOR IONS	
Cations no. drops→		2drops	2drops	2drops	2drops	2drops	2drops	2drops	GROUP I	GROUP II
Na^+	K^+	clear / colorless								
Ba^{2+}	Mn^{2+}	clear / colorless								
Mg^{2+}	Ca^{2+}	clear / colorless								
Co^{2+}	Sr^{2+}	clear / colorless								
Ni^{2+}	Cr^{3+}	clear / colorless								
Cu^{2+}	Fe^{3+}	clear / colorless								
Al^{3+}	Zn^{2+}	clear / colorless								
Pb^{2+}	Ag^+	clear / colorless	White ppt↓	Brown ppt↓	Yellow ppt↓	White ppt↓	Black ppt↓	White ppt↓		

PART 3. ***Conce. & Precip.: Each team usesTable 3 & design different reactions than Table,minimum 2 reactions per student***

TABLE 5: RECORD YOUR RAW DATA HERE similar to Table 4. Add only 2 drops of each reactant

REACTION #	REACTANT #1 & CONC	REACTANT #2 & CONC	OBSERVATIONS

TABLE 3: DESIGN REACTIONS FROM HERE

REACTION #	REACTANT #1	REACTANT #2
I	$Pb(NO_3)_2$	KI
II	$Pb(NO_3)_2$	NaOH
III	$AgNO_3$	KI
IV	$ZnSO_4$	NaOH
V	$CaCl_2$	$K_2C_2O_4$
VI	$CaCl_2$	NaOH

TABLE 4: SAMPLE REACTIONS DESIGN

Reactant #	REACT ANT #1 & Conc.	REACT ANT #2 & Conc.	O BSERV.
II-1	0.10M $Pb(NO_3)_2$	0.10M NaOH	
II-2	0.10M $Pb(NO_3)_2$	1.0M NaOH	
II-3	0.01M $Pb(NO_3)_2$	0.01M NaOH	
IV-1	0.10M $ZnSO_4$	0.10M NaOH	
IV-2	0.10M $ZnSO_4$	1.0M NaOH	
IV-3	0.01M $ZnSO_4$	0.01M NaOH	
V-1	0.10M $CaCl_2$	0.10M $K_2C_2O_4$	
V-2	0.01M $CaCl_2$	0.01M $K_2C_2O_4$	

PART 4. ***Solvent Pollution & Preci.:Group efforts, each 2 students study solubility of 1 solid***

TABLE 6: ***Solids Solubility in Polar & Non-Polar Solvents (total 6 samples to test)***

Solid Type (thoroughly dry inside test tubes)	Ionized Water 2mL	Acetone 2mL	Hexane 2mL
I. $CaCl_2$ <0.2g			
II. $K_2C_2O_4$ <0.2g			
Supernatant (I + II)			

Note: Use the solubility table from CH 4, VC210 to predict if precipatate is formed from mixing the supernatants