

Qualitative Inorganic Analysis Online Lab Submission

Name: Kevin Zhang

Class: Chem 1212

Section: Mondays, 10:30 AM – 1:25 PM

Report Sheet

Solution Letters	V	E	G	Z	R	M
V	X	Pale / Blue	Pale / Blue	Milky White	Clouded White	Milky White
E	X	X	NR	NR	Bubbles	NR
G	X	X	X	NR	Milky White	NR
Z	X	X	X	X	Clouded White	NR
R	X	X	X	X	X	Bubbles
M	X	X	X	X	X	X

Net Ionic Equations

- $\text{Ca}^{2+} + \text{CO}_3^{2-} \rightarrow \text{CaCO}_3$
- $\text{Ba}^{2+} + \text{CO}_3^{2-} \rightarrow \text{BaCO}_3$
- $2\text{Ag}^+ + \text{CO}_3^{2-} \rightarrow \text{Ag}_2\text{CO}_3$
- $2\text{H}^+ + \text{CO}_3^{2-} \rightarrow \text{H}_2\text{O} + \text{CO}_2$
- $\text{Ca}^{2+} + 2\text{NO}_3^- \rightarrow \text{Ca}(\text{NO}_3)_2$
- $\text{H}^+ + \text{NO}_3^- \rightarrow \text{HNO}_3$
- $4\text{H}^+ + \text{NO}_3^- + 3\text{Cl}^- \rightarrow \text{Cl}_2 + \text{NOCl} + \text{H}_2\text{O}$

Identification

R – Na_2CO_3

V – CaCl_2

E – HNO_3

G - $\text{Ba}(\text{NO}_3)_2$

Z - AgNO_3

M - HCl

Pre-Lab Questions

1.	Na_2CO_3	CaCl_2	$\text{Ba}(\text{NO}_3)_2$	AgNO_3	HCl	HNO_3
Na_2CO_3	X	$\text{NaCl} + \text{CaCO}_3$	$\text{BaCO}_3 + \text{NaNO}_3$	$\text{NaNO}_3 + \text{Ag}_2\text{CO}_3$	$\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2$	$\text{NaNO}_3 + \text{H}_2\text{O} + \text{CO}_2$
CaCl_2	X	X	$\text{BaCl}_2 + \text{Ca}(\text{NO}_3)_2$	$\text{AgCl} + \text{Ca}(\text{NO}_3)_2$	NR	$\text{HCl} + \text{Ca}(\text{NO}_3)_2$
$\text{Ba}(\text{NO}_3)_2$	X	X	X	NR	$\text{HNO}_3 + \text{BaCl}_2$	NR
AgNO_3	X	X	X	X	$\text{AgCl} + \text{HNO}_3$	NR
HCl	X	X	X	X	X	$\text{H}_2\text{O} + \text{Cl}_2 + \text{NOCl}$
HNO_3	X	X	X	X	X	X

2. All chemicals go into the beaker labelled WASTE SOLUTIONS
3. Barium Nitrate is toxic when ingested. Silver Nitrate is toxic and corrosive, and may stain skin
4. Solution A: FeCl_2
Solution B: HCl Solution C: K_2CO_3 Solution D: AgNO_3 Solution E: NaCl

Post-Lab Questions

1. A precipitate may form, or a gas may be formed during a reaction.
2. Spectator ions are ions that do not directly take part in a reaction, such that they remain dissolved in the solution, even after the reaction has taken place.
3. $\text{Na}^+ + \text{SO}_4^{2-} \rightarrow \text{Na}_2\text{SO}_4$ $\text{Co}^{2+} + \text{Cl}^- \rightarrow \text{CoCl}_2$ $\text{Li}^+ + \text{CO}_3^{2-} \rightarrow \text{Li}_2\text{CO}_3$
4. $\text{Ba}(\text{NO}_3)_2 + \text{K}_2\text{SO}_4 \rightarrow 2\text{KNO}_3 + \text{BaSO}_4$ $\text{Ba}^{2+} + \text{SO}_4^{2-} \rightarrow \text{BaSO}_4$
 $\text{K}_2\text{CO}_3 + 2\text{HNO}_3 \rightarrow \text{H}_2\text{O} + \text{CO}_2 + 2\text{KNO}_3$ $\text{CO}_3^{2-} + 2\text{H}^+ \rightarrow \text{H}_2\text{O} + \text{CO}_2$

5. It contains Cu^{2+} The reason is that Na^+ wouldn't react with NaOH , and Pb^{2+} is not electronegative enough to take split LiCl .