

Announcements – Lecture XIX – Thursday, June 18th

1. Final Lab: **Tuesday, June 23rd, ISB 155B**
(Pre-Lab Quiz – TA Evaluation in Class Owls)



Quiz 15

Class #: _____

Last Name: _____

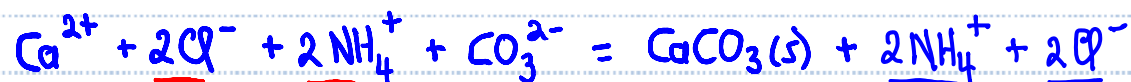
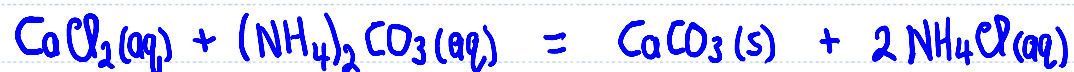
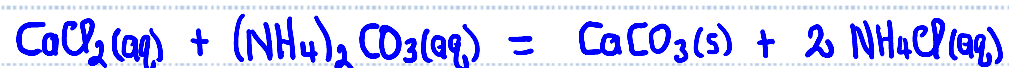
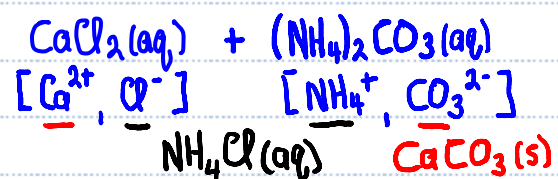
Write the **net ionic equation** for the reaction that takes place when aqueous solutions of **calcium chloride** and **ammonium carbonate** are combined?

Soluble Ionic Compounds	<i>Exceptions</i>
Sodium (Na^+), potassium (K^+), and ammonium (NH_4^+) salts	
Nitrate (NO_3^-), acetate (CH_3CO_2^-), chlorate (ClO_3^-), and perchlorate (ClO_4^-) salts	
Chloride (Cl^-), bromide (Br^-), and iodide (I^-) salts	Pb^{2+} , Ag^+ , Hg_2^{2+}
Fluoride (F^-) salts	Ca^{2+} , Sr^{2+} , Ba^{2+} , Pb^{2+}
Sulfate (SO_4^{2-}) salts	Ca^{2+} , Hg_2^{2+} , Sr^{2+} , Ba^{2+} , Pb^{2+}

Insoluble Ionic Compounds	<i>Exceptions</i>
Hydroxide (OH^-) and oxide (O^{2-}) compounds	Na^+ , K^+ , Ba^{2+}
Sulfide (S^{2-}) salts	Na^+ , K^+ , NH_4^+ , Ba^{2+}
Carbonate (CO_3^{2-}) and phosphate (PO_4^{3-}) salts	Na^+ , K^+ , NH_4^+

Quiz 15 -- Solution:

Write the **net ionic equation** for the reaction that takes place when aqueous solutions of **calcium chloride** and **ammonium carbonate** are combined?



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4.3 Reactions in Aqueous Solution

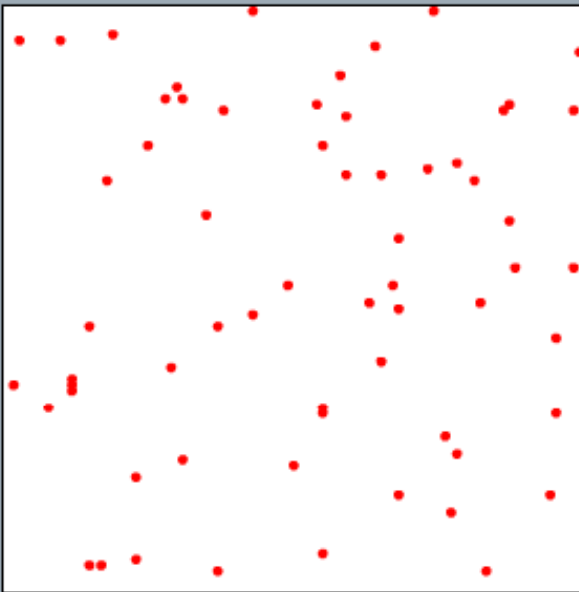
C: Acid Base Reactions – Strong Vs Weak

See class web site to interact with this simulation

Acid:

- H_3PO_4
- $\text{CH}_3\text{CO}_2\text{H}$
- H_2CO_3
- HCl
- HNO_3
- HClO_4

Ionize



Ionized acid is indicated by red in the above diagram.

While all acids are designated as (aq) ... only 6 ionize 100% in water.

If an acid is not one of the 6 strong acids then you may infer that it is weak.

6 Strong Acids

HCl	Hydrochloric acid
HBr	Hydrobromic acid
HI	Hydroiodic acid
HNO_3	Nitric acid
HClO_4	Perchloric acid
H_2SO_4	Sulfuric acid

4 Soluble Strong Bases

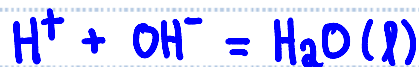
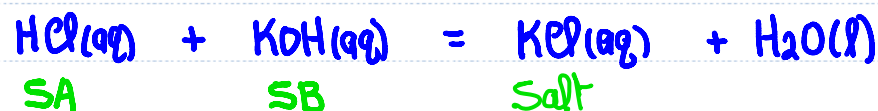
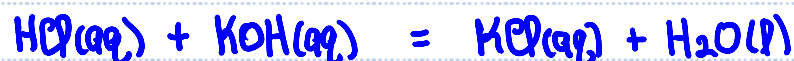
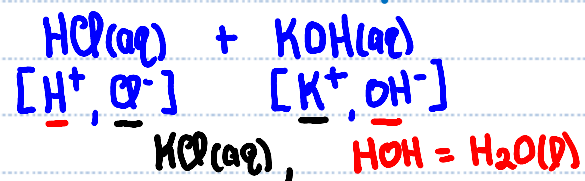
LiOH	Lithium hydroxide
NaOH	Sodium hydroxide
KOH	Potassium hydroxide
Ba(OH)_2	Barium hydroxide



4.3 Reactions in Aqueous Solution

C: Acid Base Reactions – Strong Acid + Strong Base

Give the Net Ionic Equation for the reaction that takes place when aqueous solutions of hydrochloric acid and potassium hydroxide are mixed?

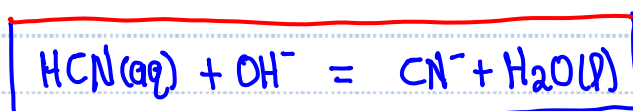
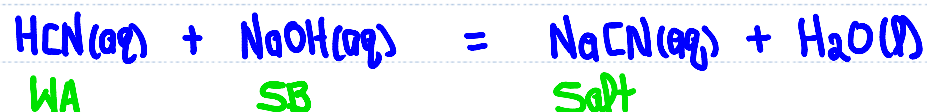
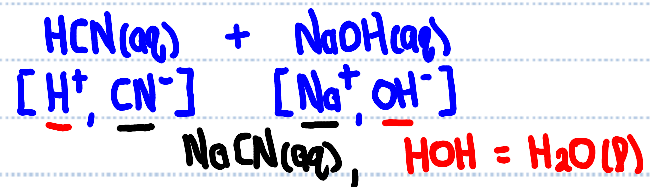


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4.3 Reactions in Aqueous Solution

C: Acid Base Reactions – Weak Acid + Strong Base

Give the Net Ionic Equation for the reaction that takes place when aqueous solutions of hydrocyanic acid (HCN) and sodium hydroxide are mixed?



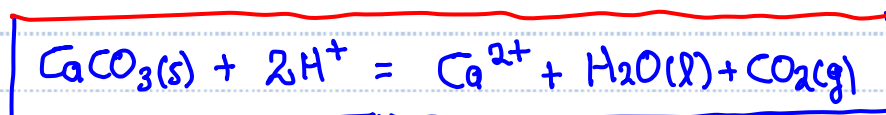
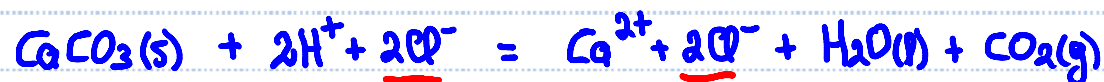
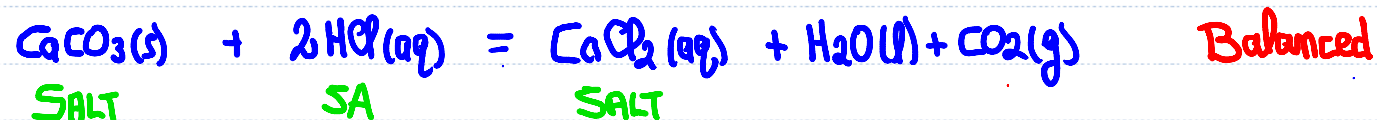
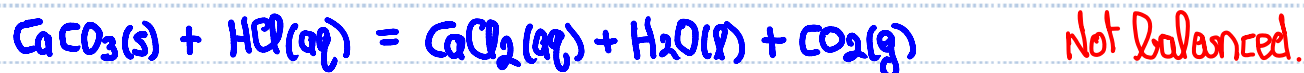
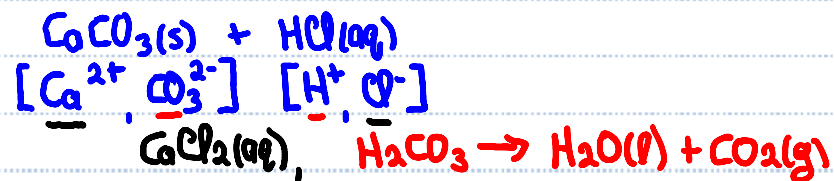
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4.3 Reactions in Aqueous Solution

D: Gas-Forming Reactions -- Metal Carbonate + Strong Acid

Give the Net Ionic Equation for the reaction that takes place when **calcium carbonate** is placed in an aqueous solution of **hydrochloric acid**.

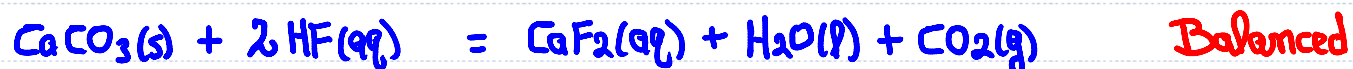
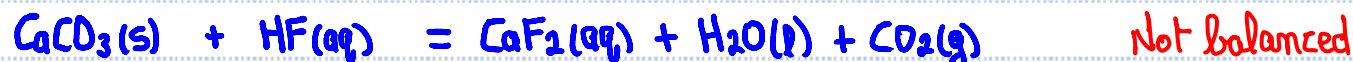
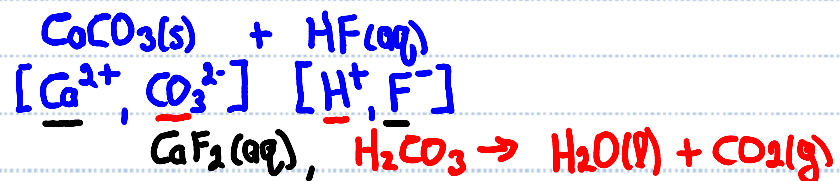


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4.3 Reactions in Aqueous Solution

D: Gas-Forming Reactions -- Metal Carbonate + Weak Acid

Give the Net Ionic Equation for the reaction that takes place when **calcium carbonate** is placed in an aqueous solution of **hydrofluoric acid (HF)**.



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4.3 Reactions in Aqueous Solution

D: Gas-Forming Reactions -- Other Types

