

Chapter 4: Worksheet #2a: Solubility and Electrolytes

1. Which of the following substances are likely to be soluble in water? Write the reaction that happens when each **soluble** substance is dissolved in water.

- a. $\text{Ba}(\text{NO}_3)_2$ **soluble** $\text{Ba}(\text{NO}_3)_2(\text{aq}) \longrightarrow \text{Ba}^{2+}(\text{aq}) + \text{NO}_3^-(\text{aq})$
- b. ZnS **insoluble**
- c. $(\text{NH}_4)_2\text{CO}_3$ **soluble** $(\text{NH}_4)_2\text{CO}_3(\text{aq}) \longrightarrow 2 \text{NH}_4^+(\text{aq}) + \text{CO}_3^{2-}(\text{aq})$
- d. Fe_2O_3 **insoluble**
- e. PbCl_2 **insoluble**
- f. NaClO_4 **soluble** $\text{NaClO}_4(\text{aq}) \longrightarrow \text{Na}^+(\text{aq}) + \text{ClO}_4^-(\text{aq})$
- g. BaCrO_4 **insoluble**
- h. FeBr_2 **soluble** $\text{FeBr}_2(\text{aq}) \longrightarrow \text{Fe}^{2+}(\text{aq}) + 2 \text{Br}^-(\text{aq})$
- i. Ag_2SO_4 **insoluble**
- j. $\text{Ca}(\text{OH})_2$ **insoluble**
- k. $\text{Hg}_2(\text{ClO}_3)_2$ **soluble** $\text{Hg}_2(\text{ClO}_3)_2(\text{aq}) \longrightarrow \text{Hg}_2^{2+}(\text{aq}) + 2 \text{ClO}_3^-(\text{aq})$
- l. K_3PO_4 **soluble** $\text{K}_3\text{PO}_4(\text{aq}) \longrightarrow 3 \text{K}^+(\text{aq}) + \text{PO}_4^{3-}(\text{aq})$
- m. $\text{Mg}_3(\text{PO}_4)_2$ **insoluble**
- n. NH_4NO_3 **soluble** $\text{NH}_4\text{NO}_3(\text{aq}) \longrightarrow \text{NH}_4^+(\text{aq}) + \text{NO}_3^-(\text{aq})$
- o. ZnCrO_4 **insoluble**
- p. NiSO_4 **soluble** $\text{NiSO}_4(\text{aq}) \longrightarrow \text{Ni}^{2+}(\text{aq}) + \text{SO}_4^{2-}(\text{aq})$
- q. AlCl_3 **soluble** $\text{AlCl}_3(\text{aq}) \longrightarrow \text{Al}^{3+}(\text{aq}) + 3 \text{Cl}^-(\text{aq})$
- r. AgI **insoluble**
- s. CaBr_2 **soluble** $\text{CaBr}_2(\text{aq}) \longrightarrow \text{Ca}^{2+}(\text{aq}) + 2 \text{Br}^-(\text{aq})$
- t. CuS **insoluble**
- u. K_2SO_3 **soluble** $\text{K}_2\text{SO}_3(\text{aq}) \longrightarrow 2 \text{K}^+(\text{aq}) + \text{SO}_3^{2-}(\text{aq})$