

# Solubility Rules Made Easy

Having trouble memorizing your solubility rules? This is the hand out for you. These are two different ways that will help and make your life a little easier.

- The first is an acronym: "CASH N' Gia." All these things are soluble unless they are found with certain elements.
- The second is a list of bullet points if you do not like the acronym. The best way to remember these is pure memorization. There is no short cut!

**All Soluble**                      **—————>**                      **Except With**

**C**hlorates

**A**cetates

**S**ulfates                      **—————>**                      **CaBaSr HgAgPb (CBS HAPpy)**

**H**alogens                      **—————>**                      **HgAgPb (HAPpy)**

**N'**itrates

**G**roup (IA)

**i**

**a**

Simple Solubility Rules:

-Nitrate ( $\text{NO}_3^-$ ) salts are soluble.

-Alkali (group 1A) salts and  $\text{NH}_4^+$  are soluble.

- $\text{Cl}^-$ ,  $\text{Br}^-$ , and  $\text{I}^-$  salts are soluble (NOT  $\text{Ag}^+$ ,  $\text{Pb}^{2+}$ ,  $\text{Hg}_2^{2+}$ )

-Sulfate salts are soluble (NOT  $\text{BaSO}_4$ ,  $\text{PbSO}_4$ ,  $\text{HgSO}_4$ ,  $\text{CaSO}_4$ )

- $\text{OH}^-$  salts are only slightly soluble ( $\text{NaOH}$ ,  $\text{KOH}$  are soluble,  $\text{Ba}(\text{OH})_2$ ,  $\text{Ca}(\text{OH})_2$  are marginally soluble)

- $\text{S}^{2-}$ ,  $\text{CO}_3^{2-}$ ,  $\text{CrO}_4^{2-}$ ,  $\text{PO}_4^{3-}$  salts are insoluble.