

<b>Name</b>	<b>Symbol</b>	<b>Charge</b>
ammonium	$\text{NH}_4$	+1
acetate	$\text{C}_2\text{H}_3\text{O}_2$	-1
bromate	$\text{BrO}_3$	-1
chlorate	$\text{ClO}_3$	-1
chlorite	$\text{ClO}_2$	-1
cyanide	$\text{CN}$	-1
dihydrogen phosphate	$\text{H}_2\text{PO}_4$	-1
hypochlorite	$\text{ClO}$	-1
hydrogencarbonate(bicarbonate)	$\text{HCO}_3$	-1
hydrogen sulfate (bisulfate)	$\text{HSO}_4$	-1
hydrogen sulfite (bisulfite)	$\text{HSO}_3$	-1
hydroxide	$\text{OH}$	-1
iodate	$\text{IO}_3$	-1
nitrate	$\text{NO}_3$	-1
nitrite	$\text{NO}_2$	-1
perchlorate	$\text{ClO}_4$	-1
permanganate	$\text{MnO}_4$	-1
thiocyanate	$\text{SCN}$	-1
carbonate	$\text{CO}_3$	-2
chromate	$\text{CrO}_4$	-2
dichromate	$\text{Cr}_2\text{O}_7$	-2
oxalate	$\text{C}_2\text{O}_4$	-2
selenate	$\text{SeO}_4$	-2
silicate	$\text{SiO}_3$	-2
sulfate	$\text{SO}_4$	-2
sulfite	$\text{SO}_3$	-2
phosphate	$\text{PO}_4$	-3
phosphite	$\text{PO}_3$	-3

## Solubility Rules

- All compounds containing alkali metal cations and the ammonium ion are SOLUBLE.
- All compounds containing  $\text{NO}_3^-$ ,  $\text{ClO}_4^-$ ,  $\text{ClO}_3^-$ , and  $\text{C}_2\text{H}_3\text{O}_2^-$  anions are SOLUBLE.
- All chlorides, bromides, and iodides are SOLUBLE except those containing  $\text{Ag}^+$ ,  $\text{Pb}^{2+}$ , or  $\text{Hg}_2^{2+}$ .
- All sulfates are SOLUBLE except those containing  $\text{Hg}_2^{2+}$ ,  $\text{Pb}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ca}^{2+}$ , or  $\text{Ba}^{2+}$ .
- All hydroxides are INSOLUBLE except compounds of the alkali metals,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ , and  $\text{Ba}^{2+}$ .
- All compounds containing  $\text{PO}_4^{3-}$ ,  $\text{S}^{2-}$ ,  $\text{CO}_3^{2-}$ , and  $\text{SO}_3^{2-}$  ions are INSOLUBLE except those that also contain alkali metals or  $\text{NH}_4^+$ .

### Strong Acids

Hydrochloric Acid, HCl

Hydrobromic Acid, HBr

Hydroiodic Acid, HI

Chloric Acid,  $\text{HClO}_3$

Perchloric Acid,  $\text{HClO}_4$

Nitric Acid,  $\text{HNO}_3$

Sulfuric Acid,  $\text{H}_2\text{SO}_4$

### Strong Bases

Group 1 metal hydroxides (LiOH, NaOH, KOH, RbOH, CsOH)

Heavy group 2 metal hydroxides ( $\text{Ca}(\text{OH})_2$ ,  $\text{Sr}(\text{OH})_2$ ,  $\text{Ba}(\text{OH})_2$ )

You have chosen to take AP Chemistry next year. The above information is the material you need to know for the first day back to school. You need to memorize the polyatomic ions, all the solubility rules and the strong acids and bases. You will be given a test on the second day of school based on this information. I hope you have a great summer and I look forward to working with you next year.