

**\*\*KNOW THE FOLLOWING POLYATOMIC IONS AND SOLUBILITY RULES BY FRIDAY!!\*\***

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**Polyatomic Ions**

Make sure you know the following common polyatomic ions and their charges.

$\text{NH}_4^+$	Ammonium	$\text{NO}_2^-$	Nitrite
$\text{C}_2\text{H}_3\text{O}_2^-$	Acetate	$\text{MnO}_4^-$	Permanganate
$\text{BrO}_3^-$	Bromate	$\text{SCN}^-$	Thiocyanate
$\text{ClO}_4^-$	Perchlorate	$\text{CO}_3^{2-}$	Carbonate
$\text{ClO}_3^-$	Chlorate	$\text{Cr}_2\text{O}_7^{2-}$	Dichromate
$\text{ClO}_2^-$	Chlorite	$\text{CrO}_4^{2-}$	Chromate
$\text{ClO}^-$	Hypochlorite	$\text{C}_2\text{O}_4^{2-}$	Oxalate
$\text{CN}^-$	Cyanide	$\text{SiO}_3^{2-}$	Silicate
$\text{HCO}_3^-$	Hydrogen carbonate (bicarbonate)	$\text{SO}_4^{2-}$	Sulfate
$\text{HSO}_4^-$	Hydrogen sulfate (bisulfate)	$\text{SO}_3^{2-}$	Sulfite
$\text{HSO}_3^-$	Hydrogen sulfite (bisulfite)	$\text{O}_2^{2-}$	Peroxide
$\text{OH}^-$	Hydroxide	$\text{PO}_4^{3-}$	Phosphate
$\text{IO}_3^-$	Iodate	$\text{PO}_3^{3-}$	Phosphite
$\text{NO}_3^-$	Nitrate		

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**Solubility Rules**

Make sure you know the following solubility rules.

- 1) Salts of ammonium and alkali metals (column 1A excluding hydrogen) are always **soluble**.
- 2) All chlorides, bromides, and iodides are **soluble** except when combined with Ag,  $\text{Hg}^{2+}$ , and Pb which are **insoluble**.
- 3) Chlorates, acetates, and nitrates (CANs) are **soluble**.
- 4) Sulfates are **soluble** except with Ca, Sr, Ba, Ag, Hg, and Pb which are **insoluble**.
- 5) Phosphates, carbonates, and sulfides are **insoluble** except ammonium and alkali metal compounds are **soluble**.
- 6) All metallic oxides are **insoluble** except ammonium and alkali metal compounds are **soluble**.
- 7) All hydroxides are **insoluble** except ammonium, alkali metal compounds, and when combined with Ca, Sr, and Ba which are **soluble**.

**\*REMEMBER: Soluble compounds dissolve in water forming aqueous (aq) solutions, while insoluble compounds do NOT dissolve in water and remain solids (s).**