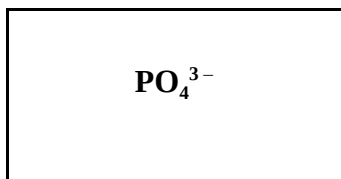


Flash Card Suggestions

The information on the reverse side of this sheet is gathered into concise and, hopefully, helpful tables. While the tables should provide a good references, they are not necessarily the best way to learn and memorize the material. A common way of getting these bits of info down is by using flash cards. Here are some suggestions for the best way to set up your flash cards:

Polyatomic Ions - Simply put the name of the polyatomic ion on one side and the formula on the other. The charge column on the table is just to help organize the ions and make them easier to look up. Since that information is already in the chemical formula, you don't need to make a separate card or heading for those. Use these cards **both** ways: you should be able to name the formula from a name and vice versa.

Example:



front

phosphate ion

back

Solubility Rules - First off, make a separate card for **each** group: Ammonium compounds, alkali metals, nitrates, carbonates, phosphates, etc. On the reverse side, simply put ***Soluble*** or ***Insoluble*** and then list any clarifications/exceptions. I would suggest making sulfate and all the groups above it in the table “soluble” and sulfides and all the groups below that in the table “insoluble”. Putting together these flash cards will be the first step on the wondrous and joyous path of memorizing all these facts.

Examples:

Halides (Cl^- , Br^- , I^-)

front

Soluble
(except Ag, Hg, Pb)

back

Sulfides

front

Insoluble
(except NH_4^+ ,
alkali metals,
alkaline earth metals)

back

Common Polyatomic Ions and Solubility Rules

Polyatomic Ion Table					
Charge	Name	Formula	Charge	Name	Formula
1+	ammonium	NH_4^+	1-	periodate	IO_4^-
1-	acetate	CH_3CO_2^-	1-	permanganate	MnO_4^-
1-	bromate	BrO_3^-	1-	thiocyanate	SCN^-
1-	chlorate	ClO_3^-	2-	carbonate	CO_3^{2-}
1-	chlorite	ClO_2^-	2-	chromate	CrO_4^{2-}
1-	cyanide	CN^-	2-	dichromate	$\text{Cr}_2\text{O}_7^{2-}$
1-	bicarbonate (hydrogen carbonate)	HCO_3^-	2-	oxalate	$\text{C}_2\text{O}_4^{2-}$
1-	bisulfate (hydrogen sulfate)	HSO_4^-	2-	sulfate	SO_4^{2-}
1-	hydroxide	OH^-	2-	sulfite	SO_3^{2-}
1-	hypochlorite	ClO^-	2-	thiosulfate	$\text{S}_2\text{O}_3^{2-}$
1-	iodate	IO_3^-	3-	arsenate	AsO_4^{3-}
1-	nitrate	NO_3^-	3-	borate	BO_3^{3-}
1-	nitrite	NO_2^-	3-	phosphate	PO_4^{3-}
1-	perchlorate	ClO_4^-			

Solubility Rules		
Negative Ion	Exceptions	Solubility
Nitrates, chlorates, acetates, perchlorates, bicarbonates	none	soluble
Halides (Cl^- , Br^- , I^-)	Ag^+ , Hg^{2+} , Hg^+ , Pb^{2+}	soluble
Sulfates	Ag^+ , Hg^{2+} , Hg^+ , Pb^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+}	soluble
Sulfides	ammonium, alkali metals, alkaline earth metals	insoluble
Hydroxides	ammonium, alkali metals, Ca^{2+} , Sr^{2+} , Ba^{2+}	insoluble
Phosphates, carbonates, chromates, sulfites, F^-	ammonium, alkali metals	insoluble