

Solubility of Ionic Compounds (to be filed in MISC. Section)

	SOLUBLE COMPOUNDS (no ppt*)	<i>Exceptions (change soluble to insoluble)</i>
1	$\text{C}_2\text{H}_3\text{O}_2^{1-}$, NO_3^- , ClO_3^- , ClO_4^- salts	no exceptions
2	Group 1A (Na^+ ...), NH_4^+ salts	no exceptions
3	Cl^- , Br^- , I^- salts	Except if combined with Ag^+ , Hg_2^{2+} , Pb^{2+} , Pb^{4+}
4	SO_4^{2-} , SO_3^{2-} salts	Except if combined with Ag^+ , Ba^{2+} , Pb^{2+} , Pb^{4+} , Ca^{2+} , Sr^{2+} , Hg_2^{2+}

	INSOLUBLE COMPOUNDS (ppt* forms)	<i>Exceptions (change insoluble to soluble)</i>
5	S^{2-} , CO_3^{2-} , PO_4^{3-} , CrO_4^{2-} salts	Except if combined with Na^+ , K^+ , NH_4^+
6	OH^- salts (bases)	Except if combined with Na^+ , K^+ , Ca^{2+} , Cs^+ , Li^+ , NH_4^+ , Rb^+ , Ba^{2+} , Sr^{2+}

ppt* = precipitate (an insoluble solid will form)

Ions in the *Exceptions* column of the **INSOLUBLE COMPOUNDS SECTION** of the chart mixed with any of the ions to their left, will cause those ions to move up to the soluble compound section on the top - making them soluble.

Ions in the *Exceptions* column of the **SOLUBLE COMPOUNDS SECTION** of the chart mixed with any of the ions to their left, will cause those ions to move down to the insoluble compound section on the bottom – making them insoluble.

NOTE: This table is adapted after Figure 7.3 on page 185 of your textbook. With it you can determine if the product of a reaction is **soluble** (will dissolve in water) or **insoluble** (will form a precipitate).

IONS THAT I ADDED TO THE CHART (helps for Solubility Lab)

- LINE 1 $\text{C}_2\text{H}_3\text{O}_2^{1-}$, ClO_3^- , ClO_4^- additional soluble ions
- LINE 3 Pb^{4+} as an exception
- LINE 4 SO_3^{2-} additional soluble ion
 Ag^+ , Pb^{4+} , Sr^{2+} , Hg_2^{2+} as exceptions
- LINE 5 CrO_4^{2-} as an insoluble salt
 Na^+ , K^+ , NH_4^+ as an exceptions
- LINE 4 Sr^{2+} , Cs^+ , Li^+ , NH_4^+ , Rb^+ , Ba^{2+} as an exceptions