



## Solubility Rules for Common Ionic Compounds in Water at 25°C

Rule	Soluble Compounds	Insoluble Exceptions
1	salts of the group 1 elements and ammonium ion	
2	nitrates, hydrogen carbonates, acetates and chlorates	
3	halides (excluding $F^-$ )	$Ag^+$ , $Cu^+$ , $Hg^+$ and $Pb^{2+}$
4	sulfates	$Ag^+$ , $Hg^+$ , $Pb^{2+}$ , $Ca^{2+}$ , $Sr^{2+}$ , and $Ba^{2+}$
	Insoluble Compounds	Soluble Exceptions
5	carbonates, phosphates, chromates	Those from Rule 1
6	sulfides	Those from Rule 1 and Group 2 ions
7	hydroxides	Those from Rule 1 and $Ba^{2+}$ , and $Sr^{2+}$

### Activity Series for Metals

Metal	Displaces hydrogen from acids	Displaces hydrogen from cold water
lithium		
potassium		
barium		
calcium		
sodium		
magnesium		
aluminum		
zinc		
chromium		
iron		
cadmium		
cobalt		
nickel		
tin		
lead		
hydrogen		
copper		
mercury		
silver		
platinum		
gold		

### Activity Series for Halogens

fluorine
chlorine
bromine
iodine