

## Solubility of Ionic Compounds in Water

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**Key:** S=Soluble    I=Insoluble    D=Decomposes in water    U=Compound does not exist or is unstable

Cation	Al	NH <sub>4</sub>	Sb	As	Ba	Bi	Cd	Ca	Cr	Co	Cu	Fe	Fe	H	Pb	Mg	Hg	Hg	Ni	K	Ag	Na	Sr	Zn	
Anion	+3	+1	+3	+3	+2	+3	+2	+2	+3	+2	+2	+3	+2	+1	+2	+2	+2	+1	+2	+1	+1	+1	+1	+2	+2
C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> <sup>-1</sup>	S	S	U	U	S	I	S	S	S	S	S	S	S	S	S	S	I	S	S	I	S	S	S	S	
Br <sup>-1</sup>	S	S	D	D	S	D	S	S	S	S	S	S	S	S	I	S	I	I <sub>a</sub>	S	S	I <sub>b</sub>	S	S	S	
CO <sub>3</sub> <sup>-2</sup>	U	S	U	U	I	U	I	I	U	I	I	U	I	S	I <sub>a</sub>	I <sub>a</sub>	I	I <sub>a</sub>	I	S	I <sub>a</sub>	S	I <sub>a</sub>	I <sub>a</sub>	
ClO <sub>3</sub> <sup>-1</sup>	S	S	U	U	S	U	S	S	U	S	S	U	U	S	S	S	S	I	S	S	S	S	S	S	
Cl <sup>-1</sup>	S	S	S	D	S	D	S	S	S	S	S	S	S	S	I	S	S	I <sub>b</sub>	S	S	I <sub>b</sub>	S	S	S	
CrO <sub>4</sub> <sup>-2</sup>	U	S	U	U	I <sub>a</sub>	U	I	S	U	I	S	S	I	S	I <sub>a</sub>	S	I <sub>a</sub>	I <sub>a</sub>	U	S	I <sub>a</sub>	S	I <sub>a</sub>	I <sub>a</sub>	
OH <sup>-1</sup>	I <sub>a</sub>	U	U	U	S	D	I	I <sub>a</sub>	I	I	I <sub>a</sub>	I <sub>a</sub>	H <sub>2</sub> O	I <sub>a</sub>	I <sub>a</sub>	U	U	I	S	U	S	I	I <sub>a</sub>	I <sub>a</sub>	
I <sup>-1</sup>	S	S	D	S	S	I	S	S	I	S	U	U	S	S	I <sub>a</sub>	S	I <sub>a</sub>	I <sub>a</sub>	S	S	I	S	S	S	
NO <sub>3</sub> <sup>-1</sup>	S	S	U	U	S	D	S	S	S	S	S	S	S	S	S	S	S	D	S	S	S	S	S	S	
O <sup>-2</sup>	I <sub>b</sub>	U	I	I	S	I	I	I	I	I <sub>a</sub>	I <sub>a</sub>	I <sub>a</sub>	H <sub>2</sub> O	I	I <sub>a</sub>	I	I <sub>a</sub>	I	D	I	D	I	I	I	
C <sub>2</sub> O <sub>4</sub> <sup>-2</sup>	I	I	I	U	I	D	I	I	S	I	I	S	I	S	I	I	I	I	I	I	S	I	S	I	
PO <sub>4</sub> <sup>-3</sup>	I <sub>a</sub>	S	U	U	I <sub>a</sub>	I	I	I <sub>a</sub>	I	I	I <sub>a</sub>	I <sub>a</sub>	S	I <sub>a</sub>	I <sub>a</sub>	U	U	I	S	I <sub>a</sub>	S	I <sub>a</sub>	I <sub>a</sub>		
SiO <sub>3</sub> <sup>-2</sup>	I	U	U	U	S	I	I	I <sub>a</sub>	U	I	U	U	I	I	I <sub>a</sub>	I <sub>a</sub>	U	U	U	S	U	S	I <sub>a</sub>	I <sub>a</sub>	
SO <sub>4</sub> <sup>-2</sup>	S	S	D	U	I <sub>b</sub>	D	S	I <sub>a</sub>	S	S	S	S	S	S	I	S	D	I	S	S	I	S	I	S	
S <sup>-2</sup>	D	S	D	I	D	I	I	I <sub>a</sub>	I	I	I <sub>a</sub>	I	I <sub>a</sub>	S	I <sub>a</sub>	D	I	I	I	S	I <sub>a</sub>	S	I	I <sub>a</sub>	
SO <sub>3</sub> <sup>-2</sup>	U	S	U	U	I	U	I	I	I	I	U	U	I	S	I	S	U	U	I	S	I	S	I	I	

I <sub>a</sub>	Soluble in Acids	I <sub>b</sub>	Slightly Soluble in Acids	H <sub>2</sub> O	Produces water
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