

## Solubility of Ionic Compounds in Water

**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	+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	U	S	S	S	S	S	I	S	S	I	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	S	I	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>	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 <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	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
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	S	I	S	I	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>	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

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