

Solubility of Common Compounds in Water

Common compounds that contain the following ions are SOLUBLE:

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|----|---|---|
| a) | sodium, potassium, and ammonium | Na ⁺ , K ⁺ , and NH ₄ ⁺ |
| b) | nitrates | NO ₃ ⁻ |
| c) | acetates, except silver acetate, which is only moderately soluble | C ₂ H ₃ O ₂ ⁻ |
| d) | chlorides, except silver, mercury (I), and lead chlorides;
PbCl ₂ is soluble in hot water | Cl ⁻ |
| e) | sulfates, except barium and lead sulfates;
calcium, mercury (I), and silver sulfates are slightly soluble. | SO ₄ ²⁻ |

Common compounds that contain the following ions are INSOLUBLE:

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|----|--|-------------------------------|
| f) | silver, except silver nitrate and silver perchlorate | Ag ⁺ |
| g) | sulfides, except those of sodium, potassium, ammonium,
magnesium, barium, and calcium | S ²⁻ |
| h) | carbonates, except those of sodium, potassium, and ammonium | CO ₃ ²⁻ |
| i) | phosphates, except those of sodium, potassium, and ammonium | PO ₄ ³⁻ |
| j) | hydroxides, except those of sodium, potassium, ammonium, and barium | OH ⁻ |

Solubility Chart

	acetate	bromide	carbonate	chlorate	chloride	chromate	hydroxide	iodide	nitrate	oxide	phosphate	silicate	sulfate	sulfide
aluminum	S	S	-	S	S	-	A	S	S	a	A	I	S	d
ammonium	S	S	S	S	S	S	-	S	S	-	S	-	S	S
barium	S	S	P	S	S	A	S	S	S	S	A	S	a	d
calcium	S	S	P	S	S	S	P	S	S	P	P	P	P	P
copper(II)	S	S	-	S	S	-	A	-	S	A	A	A	S	A
hydrogen	S	S	-	S	S	-	-	S	S	-	S	I	S	S
iron(II)	S	S	P	S	S	-	A	S	S	A	A	-	S	A
iron(III)	S	S	-	S	S	A	A	S	S	A	P	-	P	d
lead(II)	S	S	A	S	S	A	P	P	S	P	A	A	P	A
magnesium	S	S	P	S	S	S	A	S	S	A	P	A	S	d
manganese(II)	S	S	P	S	S	-	A	S	S	A	P	I	S	A
mercury(I)	P	A	A	S	a	P	-	A	S	A	A	-	P	I
mercury(II)	S	S	-	S	S	P	A	P	S	P	A	-	d	I
potassium	S	S	S	S	S	S	S	S	S	S	S	S	S	S
silver	P	a	A	S	a	P	-	I	S	P	A	-	P	A
sodium	S	S	S	S	S	S	S	S	S	S	S	S	S	S
strontium	S	S	P	S	S	P	S	S	S	S	A	A	P	S
tin(II)	d	S	-	S	S	A	A	S	d	A	A	-	S	A
tin(IV)	S	S	-	-	S	S	P	d	-	A	-	-	S	A
zinc	S	S	P	S	S	P	A	S	S	P	A	A	S	A

S=soluble in water. P=partially soluble in water, soluble in dilute acids. A=soluble in acids, insoluble in water. a=slightly soluble in acids, insoluble in water. I=insoluble in dilute acids and in water. d=decomposes in water