

Solubility Rules and Common Ions

Solubility Rules

- NO₃⁻¹** All nitrates are soluble.
- Cl⁻¹** All chlorides are soluble except: AgCl, PbCl₂, and Hg₂Cl₂.
- SO₄⁻²** All sulfates are soluble except: Ag₂SO₄, PbSO₄, Hg₂SO₄, CaSO₄, SrSO₄, and BaSO₄.
- CO₃⁻²** The carbonate of Group 1 metals and (NH₄)₂CO₃ are soluble. All other carbonates are insoluble.
- OH⁻¹** The hydroxides of Group 1 metals, and the heavier Group 2 metals Sr(OH)₂, and Ba(OH)₂ are soluble. All other hydroxides are insoluble.
- S⁻²** The sulfides of Group 1 metals, Group 2 metals, and (NH₄)₂S are soluble. All other sulfides are insoluble.

Common Ions - not easily found on the periodic table

+1	+2	+3
ammonium = NH ₄ ⁺¹ copper(I) = Cu ⁺¹ silver = Ag ⁺¹	cadmium = Cd ⁺² cobalt(II) = Co ⁺² copper(II) = Cu ⁺² iron(II) = Fe ⁺² lead(II) = Pb ⁺² nickel = Ni ⁺² zinc = Zn ⁺²	chromium(III) = Cr ⁺³ iron(III) = Fe ⁺³
-1	-2	-3
acetate = C ₂ H ₃ O ₂ ⁻¹ chlorate = ClO ₃ ⁻¹ cyanide = CN ⁻¹ bicarbonate = HCO ₃ ⁻¹ hydroxide = OH ⁻¹ nitrate = NO ₃ ⁻¹ nitrite = NO ₂ ⁻¹	carbonate = CO ₃ ⁻² chromate = CrO ₄ ⁻² dichromate = Cr ₂ O ₇ ⁻² peroxide = O ₂ ⁻² sulfate = SO ₄ ⁻² sulfite = SO ₃ ⁻² tartrate = C ₄ H ₄ O ₆ ⁻²	phosphate = PO ₄ ⁻³