



User-Friendly Solubility Table

This solubility table can be used to predict whether or not a given ionic compound is soluble. It uses exactly the same information as you find in the Chem 0861 Lab Manual.

ALWAYS SOLUBLE

Cations	Trend	Exception: low solubility
Li ⁺ , Na ⁺ , K ⁺ , Rb ⁺ , Cs ⁺ , Fr ⁺ , H ⁺ , NH ₄ ⁺ ,	<i>always</i> soluble	Li ₃ PO ₄
Anions	Trend	Exceptions
NO ₃ ⁻ [<i>nitrate</i>] ClO ₃ ⁻ [<i>chlorate</i>]	<i>always</i> soluble	---

MOSTLY SOLUBLE

Anions	Trend	Exceptions: low solubility
C ₂ H ₃ O ₂ ⁻ [<i>acetate</i>]	soluble	Ag ⁺ , Al ³⁺
Br ⁻ [<i>bromide</i>] Cl ⁻ [<i>chloride</i>] I ⁻ [<i>iodide</i>]	soluble	Ag ⁺ , Pb ²⁺ , Hg ₂ ²⁺ , Cu ⁺
F ⁻ [<i>fluoride</i>]	soluble	Be ²⁺ – Ra ²⁺ ; Al ³⁺ , Pb ²⁺
SO ₄ ²⁻ [<i>sulphate</i>]	soluble	Ba ²⁺ , Sr ²⁺ , Pb ²⁺ , Ag ⁺ , Ca ²⁺ , Hg ²⁺ , Hg ₂ ²⁺

MOSTLY LOW SOLUBILITY

Anions	Trend	Exceptions: soluble
CO ₃ ²⁻ [<i>carbonate</i>] CrO ₄ ²⁻ [<i>chromate</i>]	low solubility	“always soluble” cations
OH ⁻ [<i>hydroxide</i>] S ²⁻ [<i>sulphide</i>]	low solubility	“always soluble” cations; Be ²⁺ – Ra ²⁺
C ₂ O ₄ ²⁻ [<i>oxalate</i>]	low solubility	“always soluble” cations; Fe ³⁺
PO ₄ ³⁻ [<i>phosphate</i>]	low solubility	“always soluble” cations, but not Li ⁺ (i.e., Li ₃ PO ₄ has low solubility)
SO ₃ ²⁻ [<i>sulphite</i>]	low solubility	“always soluble” cations; Mg ²⁺

Instructions:

To determine if a particular ionic compound has low solubility, find its anion in the column on the left. The second column will tell you whether the compound is *likely* to be soluble or if it has low solubility (meaning it's insoluble except in small quantities). Check the third column to see if your compound is an exception to the trend. In this column:

- The “always soluble” cations are the ones in the double-lined box in the upper left of the table: the Group I cations, including hydrogen, and ammonium.
- “Be²⁺ – Ra²⁺” means the Group II ions, namely Be²⁺, Mg²⁺, Ca²⁺, Sr²⁺, Ba²⁺, and Ra²⁺.

