

Worksheet 5 – Displacement Reactions and Acid/Base reactions

Displacement reactions are those in which ions **recombine** in solution. If the products of this recombination are **insoluble** in water, a solid **precipitate** will form.

The **solubility rules** for common salts are summarized below:

1. Most nitrate salts are soluble.
2. Most salts of sodium, potassium and ammonium cations are soluble.
3. Most chloride salts are soluble.
Exceptions: silver, lead (II), and mercury (I) chloride (Hg_2Cl_2)
4. Most sulfate salts are soluble.
Exceptions: calcium, barium and lead (II) sulfate
5. Most hydroxides are only slightly soluble.
Exceptions: sodium, potassium, calcium and barium hydroxides
6. Most sulfide, carbonate and phosphate salts are only slightly soluble.

Based on these rules, decide if each of the following compounds is soluble (s), or insoluble (i), and which rule this is based on:

compound	solubility	rule
silver chloride	i	3
manganese (II) hydroxide	i	5
calcium nitrate	s	1
sodium carbonate	s	6, 2
nickel (II) sulfate	s	4
magnesium sulfide	i	6
calcium carbonate	i	6
potassium hydroxide	s	2, 5
ammonium nitrate	s	1, 2
potassium chloride	s	2
aluminum hydroxide	i	5