

Lesson 6: Ionic Compounds with Polyatomic Ions

Notes:

Polyatomic ions: - a group of atoms that combine to make an ion. This ion is treated as a single unit. Referred to as complex ions.

e.g., OH^- , SO_4^{2-} , PO_4^{3-}

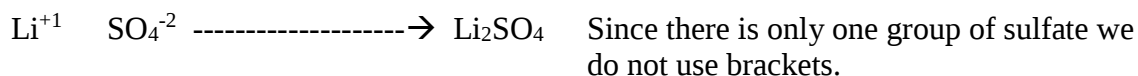
Rule for Crossing over:

Orally: *All the same rules apply from the binary compounds and here is a new rule.*

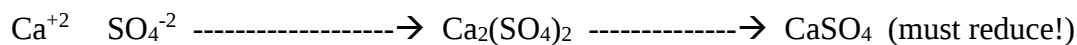
1. If there is more than one group of a complex ion in the formula, you must use brackets.

Practice exercises: Convert the name into an ionic formula.

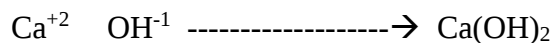
1. Lithium Sulfate



2. Calcium Sulfate



3. Calcium Hydroxide

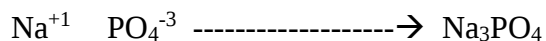


Orally:

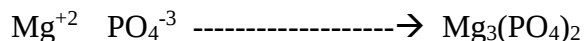
Q: Why do we need to use brackets when there is more than one group in the crystal?

A: Writing CaOH_2 would mean that you only have one oxygen and 2 hydrogen instead of 2 groups of hydroxide ions.

4. Sodium Phosphate



5. Magnesium Phosphate



Part II: Counting Atoms in Compounds and Stating Proportions.

Rules:

1. Multiply subscript values through the bracket to each atom.
2. Add.

e.g., $(\text{NH}_4)_3\text{PO}_4$ 3N, 12H, 1P and 4''O'' = 20 atoms total.



(Proportions of ions): There are 3 ammonium ions for every 1 phosphate ion.

Go back and count the total number of atoms and state proportions for each example given.

Assignment:

Lesson 6 Worksheet: Formula writing with polyatomic ions. (20 questions)