Table B.10

Rules for Naming Ions

Positive Ions (Cations)

Rule	Example	Name
1. Cations formed from metals have the same name as the element.	Na^+	sodium ion
2a. For a cation that can have different charges, indicate the charge by Roman numerals in parentheses.	Fe^{3+} Fe^{2+}	iron(III) ion iron(II) ion
2b. Or, instead of 2a., use a root name with the suffix *-ic* to denote the ion whose positive charge is larger, or the suffix *-ous* to denote the ion whose positive charge is smaller.	Fe^{3+} Fe^{2+}	ferric ion ferrous ion
3. Cations formed from nonmetals end in *-ium.*	NH_4^+	ammonium ion

Negative Ions (Anions)

Rule	Example	Name
1. For single-atom ions, replace the end of the element's name with *-ide.*	H^-	hydride ion
2. A few simple polyatomic anions have names ending in *-ide.*	OH^-	hydroxide ion
3. For polyatomic ions containing oxygen, or *oxyanions,* the most common form of the ion has a name ending in *-ate.*	CO_3^{2-} ClO_3^-	carbonate ion chlorate ion
4. Use the suffix *-ite* to indicate one less oxygen than for the suffix *-ate*.	ClO_2^-	chlorite ion
5. Use the prefix *hypo-* to indicate one less oxygen atom than for the *-ite* ending.	ClO^-	hypochlorite ion
6. Use the prefix *per-* to indicate one more oxygen than for the *-ate* ending.	ClO_4^-	perchlorate ion
7. Use the prefix *thio-* to indicate a sulfur atom has replaced an oxygen atom.	SO_4^{2-} $S_2O_3^{2-}$	sulfate ion thiosulfate ion
8. Use *bi-* before the anion name to indicate the presence of a replaceable hydrogen.	CO_3^{2-} HCO_3^-	carbonate ion bicarbonate ion