

Polyatomic Ions List

Names, formulas, and charges for the common polyatomic ions

Ion name	Formula	Charge	Notes
Ammonium	NH_4^+	+1	The most common polyatomic cation
Hydronium	H_3O^+	+1	Forms when H^+ bonds with water
Acetate	$\text{C}_2\text{H}_3\text{O}_2^-$	-1	Also written CH_3COO^-
Hydroxide	OH^-	-1	Found in bases
Nitrate	NO_3^-	-1	"-ate" form has more oxygen
Nitrite	NO_2^-	-1	"-ite" form has one less oxygen than nitrate
Cyanide	CN^-	-1	Highly toxic
Thiocyanate	SCN^-	-1	Sulfur replaces one oxygen in cyanate
Permanganate	MnO_4^-	-1	Deep purple in solution
Hydrogen carbonate (bicarbonate)	HCO_3^-	-1	Carbonate plus one H^+
Hydrogen sulfate (bisulfate)	HSO_4^-	-1	Sulfate plus one H^+
Hydrogen sulfite (bisulfite)	HSO_3^-	-1	Sulfite plus one H^+
Dihydrogen phosphate	H_2PO_4^-	-1	Phosphate plus two H^+
Hypochlorite	ClO^-	-1	Fewest oxygens in the chlorine series
Chlorite	ClO_2^-	-1	One more oxygen than hypochlorite
Chlorate	ClO_3^-	-1	One more oxygen than chlorite
Perchlorate	ClO_4^-	-1	Most oxygens in the chlorine series

Carbonate	CO_3^{2-}	-2	Found in limestone and chalk
Sulfate	SO_4^{2-}	-2	"-ate" form has more oxygen than sulfite
Sulfite	SO_3^{2-}	-2	One less oxygen than sulfate
Thiosulfate	$\text{S}_2\text{O}_3^{2-}$	-2	Sulfate with one oxygen swapped for sulfur
Chromate	CrO_4^{2-}	-2	Yellow in solution
Dichromate	$\text{Cr}_2\text{O}_7^{2-}$	-2	Orange in solution
Oxalate	$\text{C}_2\text{O}_4^{2-}$	-2	Common in organic and plant chemistry
Hydrogen phosphate	HPO_4^{2-}	-2	Phosphate plus one H^+
Peroxide	O_2^{2-}	-2	Two oxygen atoms bonded together
Silicate	SiO_3^{2-}	-2	Found in glass and minerals
Phosphate	PO_4^{3-}	-3	Essential in DNA and ATP
Phosphite	PO_3^{3-}	-3	One less oxygen than phosphate
Arsenate	AsO_4^{3-}	-3	Behaves like phosphate

Study tip: for the oxyanion series, the -ate form has one more oxygen than the -ite form. Check this list against your course materials, since some textbooks include a slightly different set of ions.