

POLYATOMIC IONS

THE SHADED IONS ARE MUST LEARN IONS, FROM THEM YOU CAN DETERMINE THE OTHERS

Since Cl, Br, and I are in the same family they behave similarly

Common Polyatomic Oxides					
Per- (1 more oxygen)		-ate		-ite (1 less oxygen)	Hypo- (2 less oxygens)
		Nitrate (NO ₃) ⁻		Nitrite (NO ₂) ⁻	
		Sulfate (SO ₄) ²⁻		Sulfite (SO ₃) ²⁻	
		Phosphate (PO ₄) ³⁻		Phosphite (PO ₃) ³⁻	
Perchlorate (ClO ₄) ⁻		Chlorate (ClO ₃) ⁻		Chlorite (ClO ₂) ⁻	Hypochlorite (ClO) ⁻
Perbromate (BrO ₄) ⁻		Bromate (BrO ₃) ⁻		Bromite (BrO ₂) ⁻	Hypobromite (BrO) ⁻
Periodate (IO ₄) ⁻		Iodate (IO ₃) ⁻		Iodite (IO ₂) ⁻	Hypoiodite (IO) ⁻

Odd companions	
Acetate (C ₂ H ₃ O ₂) ⁻	or (CH ₃ COO) ⁻
Carbonate (CO ₃) ²⁻	Cyanide (CN) ⁻
Chromate (CrO ₄) ²⁻	Hydroxide (OH) ⁻
Dichromate (Cr ₂ O ₇) ²⁻	Permanganate (MnO ₄) ⁻
Ammonium (NH ₄) ⁺	Oxylate (C ₂ O ₄) ²⁻

“bi-“ means add a hydrogen (H⁺)

ex: bisulfate = H⁺ + (SO₄)²⁻ → (HSO₄)⁻

Sometimes called “hydrogen sulfate”

MNEMONIC DEVICE FOR THE MAJOR ONES:

This works for learning the big ones, that show up often. Give it a try:

Polyatomic Ions

NICK the CAMEL ate a CLAM for SUPPER in PHOENIX

- Underlined letter represents the symbol of the element.
- The consonants represent the **number of oxygen**
- The vowels represent the **negative charge**.

Eg. Underlined letter = N
 Number of consonants = 3 represents oxygens
 Number of **vowels** = 1 represents charge

