

Common Monatomic & Polyatomic Ions

MONOATOMIC IONS

Ions with Usually 1 oxidation state (1 charge)

- Na⁺¹ sodium ion
- K⁺¹ potassium ion
- Ag⁺¹ silver ion
- Mg⁺² magnesium ion
- Ca⁺² calcium ion
- Ba⁺² barium ion
- Al⁺³ aluminium ion
- Zn⁺² zinc ion
- F⁻¹ fluoride ion
- Cl⁻¹ chloride ion
- Br⁻¹ bromide ion
- I⁻¹ iodide ion
- O⁻² oxide ion
- N⁻³ nitride ion
- P⁻³ phosphide ion

Cations with more than 1 oxidation state (variable charge)

- Cu⁺¹ copper ion or cuprous ion
- Hg₂⁺² mercury (I) ion or mercurous ion
- Cr⁺² chromium (II) ion- blue in solution
- Cu⁺² copper(II) ion or cupric ion- blue to green in solution
- Co⁺² cobalt (II) ion or cobaltous ion- pink
- Ni⁺² nickel (II) ion or nickelous ion- green in solution
- Fe⁺² iron (II) ion- and Fe⁺³ iron (III) ion -various colors (yellow, orange,

brown)

- Pb^{+2} lead (II) ion or plumbous ion
- Sn^{+2} tin(II) ion or stannous ion
- Mn^{+2} manganese (II) ion or manganous ion- faint pink in solution
- Cr^{+3} chromium (III) ion- green or violet in solution
- Mn^{+3} manganese (III) ion or manganic ion
- Co^{+3} cobalt (III) ion or cobaltic ion
- Sn^{+4} tin(IV) ion or stannic ion
- Pb^{+4} lead(IV) ion or plumbic ion

POLYATOMIC IONS

Some catchy phrases or metaphors could help to remember the ions such as:
nitrite, NO_2^-

SAY NO 2 NEGATIVE NITRITE

acetate, $\text{C}_2\text{H}_3\text{O}_2^-$

Acetate bird goes CHO (pronounced "chew")

+1

ammonium, NH_4^{+1}

hydronium, H_3O^{+1}

-1

acetate, $\text{C}_2\text{H}_3\text{O}_2^-$, or CH_3COO^-

chlorate, ClO_3^-

chlorite, ClO_2^-

cyanide, CN^-

hydrogen carbonate, HCO_3^- (also called bicarbonate)

hydroxide, OH^-

hypochlorite, ClO^-

nitrate, NO_3^-

nitrite, NO_2^-

permanganate, MnO_4^- dark purple in solution

perchlorate, ClO_4^-

dihydrogen phosphate, H_2PO_4^-

hydrogen sulfite (bisulfite), HSO_3^-

hydrogen sulfate (bisulfate), HSO_4^-

thiocyanate, SCN^-

-2

carbonate, CO_3^{2-}

chromate, CrO_4^{2-} yellow in solution

dichromate, $\text{Cr}_2\text{O}_7^{2-}$ orange in solution

hydrogen phosphate, HPO_4^{2-}

silicate, SiO_3^{2-}

oxalate, $\text{C}_2\text{O}_4^{2-}$

sulfate, SO_4^{2-}

sulfite, SO_3^{2-}

-3

phosphate, PO_4^{3-}

phosphite, PO_3^{3-}

arsenite, AsO_3^{3-}

arsenate, AsO_4^{3-}