

CHEMISTRY REFERENCE SHEET

POLYATOMIC IONS:

Students must memorize these ions:

1⁺ CHARGE:

ammonium (NH₄)⁺

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acetate (C₂H₃O₂)⁻ or
(CH₃COO)⁻

chlorate (ClO₃)⁻

chlorite (ClO₂)⁻

cyanide (CN)⁻

hydrogen carbonate or
bicarbonate (HCO₃)⁻

hydroxide (OH)⁻

hypochlorite (ClO)⁻

nitrate (NO₃)⁻

MORE 1⁻ CHARGE:

nitrite (NO₂)⁻

perchlorate (ClO₄)⁻

permanganate (MnO₄)⁻

2⁻ CHARGE:

carbonate (CO₃)²⁻

chromate (CrO₄)²⁻

dichromate (Cr₂O₇)²⁻

silicate (SiO₃)²⁻

sulfate (SO₄)²⁻

sulfite (SO₃)²⁻

3⁻ CHARGE:

phosphate (PO₄)³⁻

phosphite (PO₃)³⁻

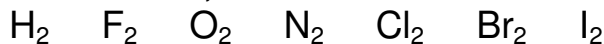
COMMON ACIDS

Students must know these acids and how to dissociate them:

acetic acid	HC ₂ H ₃ O ₂ or CH ₃ COOH	HC ₂ H ₃ O ₂ (aq) → H ⁺ (aq) + (C ₂ H ₃ O ₂) ⁻ (aq) CH ₃ COOH (aq) → H ⁺ (aq) + (CH ₃ COO) ⁻ (aq)
carbonic	H ₂ CO ₃	H ₂ CO ₃ (aq) → H ⁺ (aq) + (CO ₃) ²⁻ (aq)
hydrochloric	HCl	HCl (aq) → H ⁺ (aq) + Cl ⁻ (aq)
nitric	HNO ₃	HNO ₃ (aq) → H ⁺ (aq) + (NO ₃) ⁻ (aq)
phosphoric	H ₃ PO ₄	H ₃ PO ₄ (aq) → H ⁺ (aq) + (PO ₄) ³⁻ (aq)
sulfuric	H ₂ SO ₄	H ₂ SO ₄ (aq) → H ⁺ (aq) + (SO ₄) ²⁻ (aq)

THE SEVEN DIATOMIC MOLECULES (“Super Seven”)

diatomic when alone, uncombined with other symbols



more →

CATIONS WITH MULTIPLE CHARGES

<u>SYMBOL</u>	<u>ION NAME</u>
Cu ⁺	copper(I) ion
Cu ²⁺	copper(II) ion
Fe ²⁺	iron(II) ion
Fe ³⁺	iron(III) ion
Pb ²⁺	lead(II) ion
Pb ⁴⁺	lead(IV) ion
Sn ²⁺	tin(II) ion
Sn ⁴⁺	tin(IV) ion
Cr ²⁺	chromium(II) ion
Cr ³⁺	chromium(III) ion
Mn ²⁺	manganese(II) ion
Mn ³⁺	manganese(III) ion
Co ²⁺	cobalt(II) ion
Co ³⁺	cobalt(III) ion
Hg ²⁺	mercury(I) ion
Hg ₂ ²⁺	mercury(II) ion

“Charge Chant”: +1 +2 +3 mixed -3 -2 -1 0
+2 in the middle, unless they tell you otherwise

Group number:	IA	IIA	IIIA	IVA	VA*	VIA*	VIIA*	VIIIA
	1	2	13	14	15	16	17	18
Main ionic charge:	1+	2+	3+	M	3-	2-	1-	none

M most of the Group IVA don't usually form ions; when they do, there are mixed charges possible
 * when applicable