

TABLE 4: Elements & Their Ions

Element Symbol	Element Name	Atomic Number	Change in Number of electrons	Ion Symbol	Name of Ion	Noble Gas with same # of e-
Cl	chlorine	17	gains 1	Cl ⁻	chloride	argon
Al	aluminum	13	loses 3	Al ³⁺	aluminum ion	neon
O	oxygen	8	gains 2	O ²⁻	oxide	neon
Ca	calcium	20	loses 2	Ca ²⁺	calcium ion	argon
S	sulfur	16	gains 2	S ²⁻	sulfide	argon
K	potassium	19	loses 1	K ⁺	potassium ion	argon
H ⁺	hydrogen	1	loses 1	H ⁺	hydrogen ion	none
H ⁻	hydrogen	1	gains 1	H ⁻	hydride	helium
Mg	magnesium	12	loses 2	Mg ²⁺	magnesium ion	neon
Li	lithium	3	loses 1	Li ⁺	lithium ion	helium

TABLE 5: Monoatomic & Polyatomic Ions

Ion	Monoatomic Ion (check)	Polyatomic Ion (check)	Name of Ion
Ag ⁺	✓		silver ion
Na ⁺	✓		sodium ion
PO ₄ ³⁻		✓	phosphate
S ²⁻	✓		sulfide
O ²⁻	✓		oxide
N ³⁻	✓		nitride
H ₂ PO ₄ ⁻		✓	dihydrogen phosphate
OH ⁻		✓	hydroxide
NO ₃ ⁻		✓	nitrate
SO ₄ ²⁻		✓	sulphate
SO ₃ ²⁻		✓	sulphite
NO ₂ ⁻		✓	nitrite

TABLE 6: Ionic Compounds

Cation	Anion	Ionic Compound	Name of Ionic Compound
ie. K^+	Cl^-	KCl	potassium chloride
Mg^{2+}	Cl^-	$MgCl_2$	magnesium chloride
Ag^+	NO_3^-	$AgNO_3$	silver nitrate
NH_4^+	SO_4^{2-}	$(NH_4)_2SO_4$	ammonium sulphate
Al^{3+}	O^{2-}	Al_2O_3	aluminum oxide
Mg^{2+}	NO_3^-	$Mg(NO_3)_2$	magnesium nitrate
K^+	MnO_4^-	$KMnO_4$	potassium permanganate
Na^+	CO_3^{2-}	Na_2CO_3	sodium carbonate
K^+	SO_4^{2-}	K_2SO_4	potassium sulphate

TABLE 7: Ionic Compounds with Multiple Charges

Ionic Compound	Cation	Name (Stock System)	Name (Classical system)
$FeO_{(s)}$	Fe^{2+}	iron(II) oxide	ferrous oxide
$Fe_2O_{3(s)}$	Fe^{3+}	iron(III) oxide	ferric oxide
$SnCl_{2(s)}$	Sn^{2+}	tin(II) chloride	stannous chloride
$SnCl_{4(s)}$	Sn^{4+}	tin(IV) chloride	stannic chloride
$Pb(NO_3)_{2(s)}$	Pb^{2+}	lead(II) nitrate	plumbous nitrate
$Pb(NO_3)_{4(s)}$	Pb^{4+}	lead(IV) nitrate	plumbic nitrate

TABLE 8: Ionic or molecular

Chemical Formula	Ionic or molecular	IUPAC	Common Name
NH_3	m.	nitrogen trihydride	ammonia
H_2O	m	dihydrogen monoxide	water
$CuSO_4 \cdot 5H_2O$	I	copper(II) sulphate pentahydrate	N/A
H_2O_2	m	dihydrogen dioxide	hydrogen peroxide
$CaCO_3$	I	calcium carbonate	limestone
KOH	I	potassium hydroxide	lye