

Names of ions and ionic compounds

Types of ions:

- Cations and anions
- Monatomic ions (单原子离子) and polyatomic ions (多原子离子)

Names for monatomic ions:

- Cation: form one type of ion (fixed charge): element's name ion
 Na⁺: sodium ion
 Mg²⁺: magnesium ion
 Al³⁺: aluminium ion
 Form more than two types of ion: element's name (Roman numeral) ion
 Cu⁺: copper (I) ion
 Cu²⁺: copper (II) ion

1+: Group I: Na⁺, K⁺, Li⁺, and Ag⁺, H⁺

2+: Group II: Mg²⁺, Ba²⁺, Ca²⁺, and Zn²⁺

3+: Al³⁺

- Anion: stem-ide

1-		2-		4-	
F ⁻	fluoride	O ²⁻	oxide	C ⁴⁻	carbide
Cl ⁻	chloride	S ²⁻	sulfide		
Br ⁻	bromide	3-			
I ⁻	iodide	N ³⁻	nitride		
H ⁻	hydride	P ³⁻	phosphide		

Names for polyatomic ions:

- Cation: NH₄⁺: **ammonium**
- Anion:
 - Oxyanion (含氧酸根离子)

Central atom	sulfur	carbon	nitrogen	phosphorus	Chlorine Apply for other halogens
per-ate					⁺⁷ ClO ₄ ⁻ perchlorate chlorate(VII) BrO ₄ ⁻ perbromate bromate(VII)
-ate	SO ₄ ²⁻ sulfate	CO ₃ ²⁻ carbonate	NO ₃ ⁻ nitrate	PO ₄ ³⁻ phosphate	⁺⁵ ClO ₃ ⁻ chlorate chlorate(V)

-ite	SO ₃ ²⁻ sulfite		NO ₂ ⁻ nitrite	PO ₃ ³⁻ phosphite	⁺³ ClO ₂ ⁻ chlorite chlorate(III)
hypo-ite					⁺¹ ClO ⁻ hypochlorite chlorate(I)

H⁺ + CO₃²⁻ → HCO₃⁻: hydrogencarbonate

H⁺ + SO₄²⁻ → HSO₄⁻: hydrogensulfate

H⁺ + PO₄³⁻ → HPO₄²⁻: hydrogenphosphate

H⁺ + HPO₄²⁻ → H₂PO₄⁻: dihydrogenphosphate

H⁺ + SO₃²⁻ → HSO₃⁻: hydrogensulfite

SO₄²⁻ → S₂O₃²⁻: thiosulfate (硫代硫酸根)

⁺⁶CrO₄⁻: chromate (VI)

⁺⁶Cr₂O₇²⁻: dichromate (VI) 重铬酸根

⁺⁷MnO₄⁻: manganate (VII)

■ Other anion:

OH⁻: **hydroxide**

O₂²⁻: peroxide

CN⁻: cyanide

Name of ionic compounds:

CuSO₄

Cu²⁺ and SO₄²⁻

Copper (II) and sulfate

Copper(II) sulfate

CuSO₄·5H₂O

Copper(II) sulfate **pentahydrate**

Hydrate: water

Penta: five