

Common single & multi-charge ion states

IA	IIA											IIIA	IVA	VA	VIA	VIIA	VIIIA																								
H H⁺		<ul style="list-style-type: none"> When naming a multi-ionic state cation, use Roman Numerals to state the charge. Following ion names are also important to know. <table style="width: 100%; margin-top: 10px;"> <tr> <td style="text-align: left;"><u>Lower ionic state</u></td> <td style="text-align: left;"><u>higher ionic state</u></td> </tr> <tr> <td>Fe²⁺ (ferrous)</td> <td>Fe³⁺ (ferric)</td> </tr> <tr> <td>Co²⁺ (cobaltous)</td> <td>Co³⁺ (cobaltic)</td> </tr> <tr> <td>Cu⁺ (cuprous)</td> <td>Cu²⁺ (cupric)</td> </tr> <tr> <td>Hg₂²⁺ (mercurous)</td> <td>Hg²⁺ (mercuric)</td> </tr> <tr> <td>Sn²⁺ (stannous)</td> <td>Sn⁴⁺ (stannic)</td> </tr> <tr> <td>Pb²⁺ (plumbous)</td> <td>Pb⁴⁺ (plumbic)</td> </tr> </table>										<u>Lower ionic state</u>	<u>higher ionic state</u>	Fe ²⁺ (ferrous)	Fe ³⁺ (ferric)	Co ²⁺ (cobaltous)	Co ³⁺ (cobaltic)	Cu ⁺ (cuprous)	Cu ²⁺ (cupric)	Hg ₂ ²⁺ (mercurous)	Hg ²⁺ (mercuric)	Sn ²⁺ (stannous)	Sn ⁴⁺ (stannic)	Pb ²⁺ (plumbous)	Pb ⁴⁺ (plumbic)															H H⁻ <i>hydride</i>	He
<u>Lower ionic state</u>	<u>higher ionic state</u>																																								
Fe ²⁺ (ferrous)	Fe ³⁺ (ferric)																																								
Co ²⁺ (cobaltous)	Co ³⁺ (cobaltic)																																								
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Pb ²⁺ (plumbous)	Pb ⁴⁺ (plumbic)																																								
Li Li⁺	Be Be²⁺	B	C	N N³⁻ <i>nitride</i>	O O²⁻ <i>oxide</i>	F F⁻ <i>fluoride</i>	Ne																																		
Na Na⁺	Mg Mg²⁺	Al Al³⁺	Si	P P³⁻ <i>phosphide</i>	S S²⁻ <i>sulfide</i>	Cl Cl⁻ <i>chloride</i>	Ar																																		
K K⁺	Ca Ca²⁺	Sc Sc³⁺	Ti Ti⁴⁺	V	Cr Cr²⁺ Cr³⁺	Mn Mn²⁺ Mn³⁺	Fe Fe²⁺ Fe³⁺	Co Co²⁺ Co³⁺	Ni Ni²⁺	Cu Cu⁺ Cu²⁺	Zn Zn²⁺	Ga Ga³⁺	Ge	As As³⁻ <i>arsenide</i>	Se Se²⁻ <i>selenide</i>	Br Br⁻ <i>bromide</i>	Kr																								
Rb Rb⁺	Sr Sr²⁺	Y	Zr	Nb	Mo	<i>Tc</i>	Ru	Rh	Pd	Ag Ag⁺	Cd Cd²⁺	In	Sn Sn²⁺ Sn⁴⁺	Sb	Te Te²⁻ <i>telluride</i>	I I⁻ <i>iodide</i>	Xe																								
Cs Cs⁺	Ba Ba²⁺	La	Hf	Ta	W	Re	Os	Ir	Pt	Au Au⁺ Au³⁺	Hg Hg²⁺ *Hg₂²⁺	Tl	Pb Pb²⁺ Pb⁴⁺	Bi	Po	At	Rn																								
Fr	Ra	Ac	<i>Rf</i>	<i>Db</i>	<i>Sg</i>	<i>Bh</i>	<i>Hs</i>	<i>Mt</i>																																	

* A diatomic ion

Common acid compounds and their root hydrogen compound

<i>Formula</i>	<i>Name</i>	<i>Acid form</i>	<i>Formula</i>
HF (g)	hydrogen fluoride	hydrofluoric acid	HF (aq)
HCl (g)	hydrogen chloride	hydrochloric acid	HCl (aq)
HBr (g)	hydrogen bromide	hydrobromic acid	HBr (aq)
HI (g)	hydrogen iodide	hydroiodic acid	HI (aq)
H ₂ S (g)	dihydrogen sulfide	hydrosulfuric acid	H ₂ S (aq)
HCN (g)	hydrogen cyanide	hydrocyanic acid	HCN (aq)

Common polyatomic anions and their acid

<i>Formula</i>	<i>Name</i>	<i>Acid form</i>	<i>Formula</i>
NO ₃ ⁻	nitrate	nitric acid	HNO ₃
NO ₂ ⁻	nitrite	nitrous acid	HNO ₂
SO ₄ ²⁻	sulfate	sulfuric acid	H ₂ SO ₄
SO ₃ ²⁻	sulfite	sulfurous acid	H ₂ SO ₃
PO ₄ ³⁻	phosphate	phosphoric acid	H ₃ PO ₄
PO ₃ ³⁻	phosphite	phosphorus acid	H ₃ PO ₃
CO ₃ ²⁻	carbonate	carbonic acid	H ₂ CO ₃
C ₂ H ₃ O ₂ ⁻	acetate	acetic acid	HC ₂ H ₃ O ₂
CrO ₄ ²⁻	chromate	chromic acid	H ₂ CrO ₄
CN ⁻	cyanide	hydrocyanic acid	HCN (aq)
C ₂ O ₄ ²⁻	oxalate	oxalic acid	H ₂ C ₂ O ₄
oxyhalides			
ClO ₄ ⁻	perchlorate	perchloric acid	HClO ₄
ClO ₃ ⁻	chlorate	chloric acid	HClO ₃
ClO ₂ ⁻	chlorite	chlorous acid	HClO ₂
ClO ⁻	hypochlorite	hypochlorous acid	HClO
BrO ₄ ⁻	perbromate	perbromic acid	HBrO ₄
BrO ₃ ⁻	bromate	bromic acid	HBrO ₃
BrO ₂ ⁻	bromite	bromous acid	HBrO ₂
BrO ⁻	hypobromite	hypobromous acid	HBrO
IO ₄ ⁻	periodate	periodic acid	HIO ₄
IO ₃ ⁻	iodate	iodic acid	HIO ₃
IO ₂ ⁻	iodite	iodous acid	HIO ₂
IO ⁻	hypoiodite	hypoiodous acid	HIO

* important common names

Other common polyatomic anions and cations

<i>Formula</i>	<i>Name</i>
anion	
OH ⁻	hydroxide
MnO ₄ ⁻	permanganate
Cr ₂ O ₇ ²⁻	dichromate
O ₂ ²⁻	peroxide
SCN ⁻	thiocyanate
S ₂ O ₃ ²⁻	thiosulfate
AlO ₂ ⁻	aluminate
acid anion	
HSO ₄ ⁻	hydrogen sulfate (bisulfate*)
HSO ₃ ⁻	hydrogen sulfite (bisulfite*)
HCO ₃ ⁻	Hydrogen carbonate (bicarbonate*)
H ₂ PO ₄ ⁻	dihydrogen phosphate
HPO ₄ ²⁻	hydrogen phosphate
HS ⁻	Hydrogen sulfide (bisulfide**)
cation	
NH ₄ ⁺	ammonium
PH ₄ ⁺	phosphonium
H ₃ O ⁺	hydronium
Hg ₂ ²⁺	mercury(I) or mercurous