

HUGE LISTIONS



monoatomic cations

homopolyatomic cations

heteropolyatomic cations

monoatomic anions

homopolyatomic anions

heteropolyatomic anions

HUGE LIST IONS

382 IONS

formulas

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Guide to the Lists of ions

Alphabetized by Common Names

Alphabetized by Formulas

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Common Names and IUPAC Names of Ions

International Union of Pure and Applied Chemistry (IUPAC)

Monoatomic Cations

	Stock System Name	IUPAC Name	Formula
1	actinium	actinium(3+)	Ac ³⁺
2	aluminium	aluminium(3+)	Al ³⁺
3	antimony(III)	antimony(3+)	Sb ³⁺
4	antimony(V)	antimony(5+)	Sb ⁵⁺
5	americium(III)	americium(3+)	Am ³⁺
6	americium(IV)	americium(4+)	Am ⁴⁺
7	arsenic(III)	arsenic(3+)	As ³⁺
		arsenic(5+)	As ⁵⁺

Monoatomic Anions

	Common Name	Element	IUPAC Name	Formula
1	antimonide	antimony	antimonide(3-); stibanetriide	Sb ³⁻
2	arsenide	arsenic	arsenide(3-); arsenetriide	As ³⁻
3	astatide	astatine	astatide(1-)	At ⁻
4	boride	boron	boride(1-)	B ⁻
5	bromide	bromine	bromide(1-)	Br ⁻
6	carbide	carbon	carbide(1-)	C ⁻
7	chloride	chlorine	chloride(1-)	Cl ⁻
8	germide	germanium	germide(4-)	Ge ⁴⁻
9	hydride	hydrogen	hydride(1-)	H ⁻
10	iodide	iodine	iodide(1-)	I ⁻
11	methanide	carbon	methanide(4-)	C ⁴⁻

Heteropolyatomic Anions Derived from Oxoacids (Oxoanions)

	Common Name	Formula	IUPAC Name	Alternate Formula
23	dithionite; hydrosulfite	S ₂ O ₄ ²⁻	dithionite(2-)	[S ₂ O ₄] ²⁻
24	hydrogenarsenate	HA ₃ O ₄ ²⁻	hydroxidotrioxidoarsenate(2-)	[AsO ₃ (OH)] ²⁻
25	hydrogenborate	HBO ₃ ²⁻	hydroxidodioxidoborate(2-)	[BO ₂ (OH)] ²⁻
26	hydrogencarbonate; bicarbonate ¹	HCO ₃ ⁻	hydroxidodioxidocarbonate(1-)	[CO ₂ (OH)] ⁻
27	hydrogenchromate	HCrO ₄ ⁻	hydroxidotrioxidochromate(1-)	[CrO ₃ (OH)] ⁻
28	hydrogendichromate	HCr ₂ O ₇ ⁻	hydrogen(heptaoxidodichromate)(1-)	[Cr ₂ O ₆ (OH)] ⁻
29	hydrogendimolybdate	HMo ₂ O ₇ ⁻	hydrogen(heptaoxidodimolybdate)(1-)	[HM ₂ O ₆] ⁻
30	hydrogendiphosphate	HP ₂ O ₇ ²⁻	diphosphate(3-)	[P ₂ O ₆ (OH)] ³⁻
31	hydrogen dithionate	HS ₂ O ₆ ²⁻	dithionate(1-)	[S ₂ O ₅ (OH)] ⁻
32	hydrogen dithionite	HS ₂ O ₄ ⁻	dithionite(1-)	[S ₂ O ₃ (OH)] ⁻
33	hydrogenmanganate	HMnO ₄ ⁻	hydroxidotrioxido-manganate(1-)	[MnO ₃ (OH)] ⁻
34	hydrogen oxalate; hydrogencarboxylate	HC ₂ O ₄ ⁻ or C ₂ HO ₄ ⁻	oxalate(1-)	[C ₂ O ₃ (OH)] ⁻
35	hydrogenphosphate	HPO ₄ ²⁻	hydroxidotrioxido-phosphate(2-)	[PO ₃ (OH)] ²⁻
36	hydrogenphosphite	HPO ₃ ²⁻	hydroxidodioxidophosphate(2-)	[PO ₂ (OH)] ²⁻
37	hydrogenselenate	HSeO ₄ ⁻	hydroxidotrioxidoselenate(1-)	[SeO ₃ (OH)] ⁻
38	hydrogenselenite	HSeO ₃ ⁻	hydroxidodioxidoselenate(1-)	[SeO ₂ (OH)] ⁻
39	hydrogensulfate	HSO ₄ ⁻	hydroxidotrioxidosulfate(3-)	[SiO ₃ (OH)] ³⁻
40	hydrogensulfite; bisulfate ¹	HSO ₄ ⁻	hydroxidotrioxidosulfate(1-)	[SO ₃ (OH)] ⁻
41	hydrogensulfite; bisulfite ¹	HSO ₃ ⁻	hydroxidodioxidosulfate(1-)	[SO ₂ (OH)] ⁻
42	hydrogentellurate	HTeO ₄ ⁻	hydroxidotrioxidotellurate(1-)	[TeO ₃ (OH)] ⁻
43	hydrogentellurite	HTeO ₃ ⁻	hydroxidodioxidotellurate(1-)	[TeO ₂ (OH)] ⁻
44	hydrogen triphosphate	HP ₃ O ₁₀ ⁴⁻	triphosphate(4-)	[P ₃ O ₉ (OH)] ⁴⁻
45	hydrogentungstate	HWO ₄ ⁻	hydroxidotrioxidotungstate(1-)	[WO ₃ (OH)] ⁻

Guide to List of Ions

Monoatomic Cations

- Monoatomic cations are positively charged ions and are formed from a single atom of an element.
- Cation formulas have charge numbers written as superscripts on the right of the element symbol, with numbers before the positive or plus sign. The charge of a cation with a charge of 1+ is written without the numeral 1. For example, the silver cation has a charge of 1+, but its formula is written as Ag⁺, not Ag¹⁺.
- Entries in the table of monoatomic cations are alphabetic in order of the formulas and increasing charges.
- Stock system names have charge numbers written in Roman numerals and inside parentheses after the element name with no added space. These stock names are accepted by the IUPAC.
- Latin system names are sometimes used to distinguish cations of the same element, usually using the ending *ous* to indicate the cation with the lower positive charge and the ending *ic* for the cation with the higher positive charge. For example, the Latin name for the element silver is *argentum*. The Latin name for the silver cation Ag⁺ is *argentous* and that for Ag²⁺ is *argentic*.
- The IUPAC has designated Latin names followed by dagger symbols (†) as superscripts in to be **obsolete and not acceptable**. However, you may still encounter these terms.
- Though not recommended by the IUPAC, the term *aluminum* is officially accepted in the United States of America and Canada. The term *aluminium* is accepted in other English-speaking parts of the world. The IUPAC accepted the term *aluminium* as the international scientific standard.
- The IUPAC does not recommend using the terms *caesium* and *sulphur* for the elements *caesium* and *sulfur*, respectively.
- The element symbol for tungsten is W. It is derived from the *wolfram*, which is the first source of the element. The term *wolfram* is still used in some languages. However, the IUPAC does not use *wolfram* for tungsten in the English language.
- The accepted IUPAC names for monoatomic cations are those written right after the element name with the correct IUPAC name for the silver cation is silver (silver⁺).

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Heteropolyatomic Anions Derived from Oxoacids (Oxoanions)

Formula	Common Name	IUPAC Name
Molybdenum: Mo		
33 molybdic acid $\text{MoO}_2(\text{OH})_2 = \text{H}_2\text{MoO}_4$ Loss of two H^+ $[\text{MoO}_4]^{2-} = \text{MoO}_4^{2-}$	molybdate	tetraoxidomolybdate(2-)
34 dimolybdic acid $\text{Mo}_2\text{O}_5(\text{OH})_2 = \text{H}_2\text{Mo}_2\text{O}_7$ Loss of one H^+ $[\text{HMo}_2\text{O}_7]^- = \text{HMo}_2\text{O}_7^-$	hydrogendimolybdate	hydrogen(heptaoxido-dimolybdate)(1-)
35 Loss of two H^+ $[\text{Mo}_2\text{O}_7]^{2-} = \text{Mo}_2\text{O}_7^{2-}$	dimolybdate	heptaoxidodimolybdate(2-)
Nitrogen: N		
36 nitrous acid $\text{NO}(\text{OH}) = \text{HNO}_2$ Loss of one H^+ $[\text{NO}_2]^-$		dioxidonitrate(1-)
37 nitric acid $\text{NO}_2(\text{OH}) = \text{HNO}_3$ Loss of one H^+ $[\text{NO}_3]^-$		

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Heteropolyatomic Anions Derived from Organic Acids

Formula	Common Name	IUPAC Name	Organic Acid
13 $\text{C}_4\text{H}_5\text{O}_6^-$	L-tartrate	L-tartrate(1-); hydrogen tartrate	L-tartaric acid; racemic acid $\text{C}_4\text{H}_6\text{O}_6$
14 $\text{C}_4\text{H}_7\text{O}_2^-$	butyrate	butyrate; butanoate	butyric acid; butanoic acid $\text{C}_4\text{H}_8\text{O}_2$
15 $\text{C}_5\text{H}_7\text{O}_4^-$	glutarate	glutarate(1-); 5-hydroxy-5-oxopentanoate	glutaric acid; pentanedioic acid $\text{C}_5\text{H}_8\text{O}_4$
16 $\text{C}_5\text{H}_9\text{O}_2^-$	valerate	valerate; pentanoate	valeric acid; pentanoic acid $\text{C}_5\text{H}_{10}\text{O}_2$
17 $\text{C}_6\text{H}_5\text{O}_7^{3-}$	citrate	citrate; 2-hydroxypropane-1,2,3-tricarboxylate	citric acid $\text{C}_6\text{H}_8\text{O}_7$
18 $\text{C}_6\text{H}_7\text{O}_6^-$	ascorbate	L-ascorbate(1-)	ascorbic acid $\text{C}_6\text{H}_8\text{O}_6$
19 $\text{C}_6\text{H}_9\text{O}_4^-$	adipate	adipate(1-); hydrogen adipate 5-carboxypentanoate	adipic acid; hexanedioic acid $\text{C}_6\text{H}_{10}\text{O}_4$
20 $\text{C}_6\text{H}_{11}\text{O}_2^-$	hexanoate; caproate	hexanoate(1-); 1-pentacarboxylate	hexanoic acid; caproic acid $\text{C}_6\text{H}_{12}\text{O}_2$
21 $\text{C}_7\text{H}_5\text{O}_2^-$	benzoate	benzoate; benzenecarboxylate	benzoic acid $\text{C}_7\text{H}_6\text{O}_2$
22 $\text{C}_7\text{H}_5\text{O}_3^-$	salicylate	salicylate; 2-hydroxybenzoate	salicylic acid; 2-hydroxybenzoic acid $\text{C}_7\text{H}_6\text{O}_3$
23 $\text{C}_7\text{H}_5\text{O}_4^-$	gentisate	5-hydroxysalicylate; 2,5-dihydroxybenzoate	gentisic acid; 2,5-dihydroxybenzoic acid $\text{C}_7\text{H}_6\text{O}_4$
24 $\text{C}_7\text{H}_5\text{O}_5^-$	gallate	gallate; 3,4,5-trihydroxybenzoate	gallic acid; 3,4,5-trihydroxybenzoic acid $\text{C}_7\text{H}_6\text{O}_5$
25 $\text{C}_7\text{H}_{11}\text{O}_4^-$	pimelate	pimelate(1-); heptanedioate	pimelic acid; heptanedioic acid $\text{C}_7\text{H}_{12}\text{O}_4$
26 $\text{C}_8\text{H}_4\text{O}_4^{2-}$	phthalate	phthalate; benzene-1,2-dicarboxylate	phthalic acid $\text{C}_8\text{H}_6\text{O}_4$
27 $\text{C}_8\text{H}_7\text{O}_2^-$	o-toluate	o-toluate; 2-methylbenzoate	o-toluic acid; 2-methylbenzoic acid $\text{C}_8\text{H}_8\text{O}_2$
28 $\text{C}_8\text{H}_7\text{O}_3^-$	mandelate	mandelate; 2-hydroxy-2-phenylacetate	mandelic acid $\text{C}_8\text{H}_8\text{O}_3$
29 $\text{C}_8\text{H}_{12}\text{O}_4^{2-}$	suberate	suberate(2-); octanedioate	suberic acid; octanedioic acid $\text{C}_8\text{H}_{14}\text{O}_4$