

Naming Simple Ionic Compounds

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Video Workbook with Dr. B

Ionic compounds are made of a Metal and Non-Metal.

Metal + Non-Metal = Ionic Compound

for example, CaCl₂, KBr, or Al₃N₂

These are called Binary Ionic compounds because they only have two different types of atoms.

H H Sydney																2 He	
3 Li	4 Be	Metals Metalloids Non-Metals 5 6 B C										Č	7 N Nitropol	8 O Origina	9 F	10 Ne Non	
11 Na Sodian	12 Mg Magnesium			Т	rans	itior	13 Al	14 Si	15 P Pinspheras	16 S Sotte	17 Cl Chlorine	18 Ar					
19 K Potposis	20 Ca Catrium	21 Sc Scurdium	22 Ti	23 V Vanadium	24 Cr	25 Mn Manganese	26 Fe	27 Co	28 Ni Nisted	29 Cu	30 Zn zav	31 Ga	32 Ge	33 As	34 Se Seleman	35 Br	36 Kr _{Кеурана}
37 Rb	38 Sr Streetien	39 Y Yttrun	40 Zr	41 Nb Nishian	42 Mo Molyhdonun	43 Tc Technotism	44 Ru Rathenium	45 Rh	46 Pd Pallation	47 Ag	48 Cd Cadmisso	49 In	50 Sn	51 Sb	52 Te	53 I Indite	54 Xe Xosoo
Cs Cessus	56 Ba	57 La	72 Hf	73 Ta Tantalam	74 W Tutpton	75 Re	76 Os Osmiun	77 Ir	78 Pt Platinum	79 Au	80 Hg	81 Tl Thaltum	82 Pb	83 Bi	84 Po Polonium	85 At Adabay	86 Rn tates
87 Fr	88 Ra Radium	89 Ac Actinium	104 Rf Retherfordism	105 Db Dahasan	106 Sg Seutoopun	107 Bh Bultrium	108 Hs	109 Mt Memorium	110	111	112	113	114				

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Metals, Non-Metals, and Metalloids on the Periodic Table

Keys to Naming Binary Ionic Compounds

Name the metal (the cation) as it appears on the Periodic Table.

$$Na^+ = Sodium$$

$$Mg^{2+} = Magnesium$$

$$A1^{3+} = Aluminum$$

For the non-metal (the anion) write the name on the Periodic Table and then replace the ending with ide.

- CaCl₂ = Calcium chlorine = Calcium chloride
- AlN = Aluminum nitrogen = Aluminum nitride
- Na₂O = Sodium oxygen = Sodium oxide

Essential Video: <u>How to Name Binary Ionic Compounds</u>

Practice with Video Explanations

Extensive interactive practice naming.

This is one of the most effective ways to learn naming and formula writing.

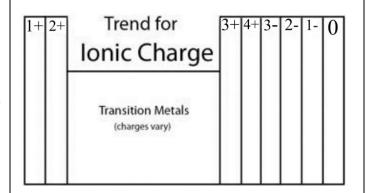
Formula Writing for Simple Ionic Compounds

We must consider the *ionic charge* on each element to write the formulas for ionic compounds.

The general trend for ionic charge follows the groups on the Periodic Table.

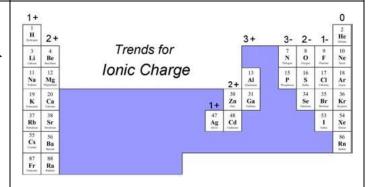
Note that the charges for Transition Metals can vary depending on what elements they are bonded to

For a more in-depth discussion, see: https://youtu.be/M22YQ1hHhEY



The chart above provides an easy to remember but very general trend. Note there are a number of exceptions.

The chart to the right gives you a sense of the exceptions.



Keys to Writing Formulas for Binary Ionic Compounds:

- Write the symbols for each element.
- Find the charge for each element using the Periodic Table. Write it above each element.
- See if the charges are balanced (if they are you're done!)
- Add subscripts (if necessary) so the charge for the entire compound is zero.
- Use the crisscross method to check your work.
- Don't write the subscript '1'.
- If you use the criss-cross method and end up with something like Ca2S2 you'll need to reduce the subscripts to Ca1S1 which we write as CaS.

Essential Video: How to Name Binary Ionic Compounds

Practice with Video Explanations

Extensive interactive practice writing formulas.

Report errors and suggestions to DrB@breslyn.org

