

KEY

Covalent Compounds (Non-metal/Non-metal) Naming

◆ When both elements are non-metals the rules for naming change slightly.

RULES:

1. Write the most metallic element first.
2. Use Greek prefixes to indicate the number of atoms of each element present.
3. If there is only one atom of the first element do not use a prefix.
4. The least metallic element is given an "ide" ending.

Greek Prefixes

1 = mono	6 = hexa
2 = di	7 = hepta
3 = tri	8 = octa
4 = tetra	9 = nona
5 = penta	10 = deca

For Example:

Formula	Name
CO	Carbon Monoxide
P ₂ O ₃	Diphosphorus trioxide
SiO ₂	Silicon dioxide

Practice:

◆ Name the following compounds:

- | | | | |
|-----------------------------------|--------------------------------|-----------------------------------|-------------------------------|
| A. N ₂ O ₃ | <u>dinitrogen trioxide</u> | I. N ₂ O ₅ | <u>dinitrogen pentoxide</u> |
| B. AsBr ₃ | <u>arsenic tribromide</u> | J. TeF ₂ | <u>tellurium difluoride</u> |
| C. SiF ₄ | <u>silicon tetrafluoride</u> | H. As ₂ O ₅ | <u>diarsenic pentoxide</u> |
| D. CCl ₄ | <u>carbon tetrachloride</u> | I. Si ₃ S | <u>trisilicon monsulphide</u> |
| E. SeCl ₆ | <u>selenium hexachloride</u> | J. SeF ₂ | <u>selenium difluoride</u> |
| F. Te ₃ N ₄ | <u>tellurium tetranitride</u> | K. AsI ₃ | <u>arsenic triiodide</u> |
| G. CH ₄ | <u>carbon tetrahydride</u> | L. PCl ₃ | <u>phosphorus trichloride</u> |
| H. Si ₃ N ₄ | <u>trisilicon tetranitride</u> | M. CO ₂ | <u>carbon dioxide</u> |

Covalent Compounds

(non-metal/non-metal)

Writing Formulae

- ◆ To write the formula for non-metal/non-metal compounds you do not need to know the combining capacity of the elements involved. You need only know their Greek prefixes.

RULES:

1. Write the symbol for the most metallic element first.
2. Write the symbol for the least metallic element second.
3. Use the Greek prefixes preceding the name of each element to determine the subscripts required.

For Example:

Name	Formula
Carbon disulphide	CS_2
Diarsenic pentoxide	As_2O_5
Phosphorus trichloride	PCl_3

Practice:

- ◆ Give the formulas for the following:

- A. Carbon tetrafluoride CF_4
- B. diboron trioxide B_2O_3
- C. carbon monoxide CO
- D. diphosphorus pentoxide P_2O_5
- E. arsenic tribromide $AsBr_3$
- F. Tellurium dichloride $TeCl_2$
- G. Silicon disulphide SiS_2
- H. Carbon tetrastatide CA_4
- I. sulphur hexachloride S_6Cl_6
- J. selenium hexafluoride SeF_6
- K. Carbon dioxide CO_2
- L. Dinitrogen trioxide N_2O_3
- M. Trisilicon tetraoxide Si_3O_4

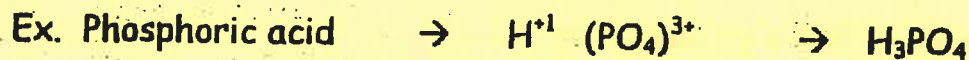
Tetraphosphorus dichloride P_4Cl_2

Writing Formulas for Acids

- ◆ Writing formulas for acids is a relatively simple procedure if you follow these few rules.

RULES:

1. Determine from the name which halogen or polyatomic ion you are using.
2. Write the hydrogen ion and its combining capacity first.
3. Write the halogen or polyatomic ion with its combining capacity second.
4. Use the "Criss Cross" rule and reduce.

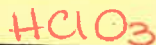


ANION "ide" \rightarrow hydro _____ ic
"ate" \rightarrow _____ ic
"ite" \rightarrow _____ ous

Practice:

- ◆ Write formulas for the following:

- A. Chloric acid
- B. Oxalic acid
- C. Hydroiodic acid
- D. Acetic acid
- E. Perchloric acid
- F. Iodic acid
- G. Hydrofluoric acid
- H. Bisulphuric acid
- I. Carbonic acid
- J. Chromic acid



Naming Acids

- ◆ Most acids can be recognized from the hydrogen atom at the beginning of the formula.
For example: HCl , HNO_3 , and H_2SO_4 . Naming acids involves following a few simple rules.

RULES:

- ◆ If the acid is composed of H & a halogen
 1. Add the prefix hydro and the suffix ic to the name of the halogen.
 2. Follow with the word acid

Ex. HCl ---- hydrochloric acid

- ◆ If the acid is composed of H & a polyatomic ion
 1. Write the name of the polyatomic ion but change the ending to:
ic if the polyatomic ion ends in "ate"
ous if the polyatomic ends in "ite"

2. Follow with the word acid

Ex. HNO_3 ----- Nitric acid
 H_2SO_3 ----- Sulphurous acid

Practice:

- ◆ Name the following:

- A. HBr
- B. H_2SO_4
- C. H_2CO_3
- D. HF
- E. HClO_2
- F. HNO_2
- G. H_3BO_3
- H. HIO_3
- I. HCl
- J. HNO_3

hydrobromic acid
sulphuric acid
carbonic acid
hydrofluoric acid
chlorous acid
nitrous acid
boric acid
iodic acid
hydrochloric acid
nitric acid

I ATE an acid & it was ICKY!
I only BITE things that
are DELICIOUS

KEY

Part A: Name the following covalent compounds.

1. CO carbon monoxide
2. CO₂ carbon dioxide
3. N₂O₃ di nitrogen trioxide
4. N₂ nitrogen gas
5. NP nitrogen monophosphide
6. SCl₂ sulphur dichloride
7. P₂O₅ diphosphorus pentoxide
8. NBr₃ nitrogen tribromide
9. Cl₄ carbon tetraiodide
10. CCl₄ carbon tetrachloride
11. PF₅ phosphorus pentafluoride
12. PF₃ phosphorus trifluoride
13. OS oxygen monosulphide
14. SeF₂ selenium difluoride
15. TeBr₂ tellurium dibromide
16. P₂S₅ diphosphorus pentasulphide
17. C₃N₄ tricarbon tetranitride
18. F₂ fluorine gas
19. CH₄ carbon tetrahydride
(methane)
20. PH₃ phosphorus trihydride

Part B: Write the Chemical Formula for each of the following compounds.

1. carbon tetrafluoride CF₄
2. silicon dioxide SiO₂
3. dinitrogen trisulfide N₂S₃
4. phosphorus mononitride PN
5. hydrogen gas H₂
6. carbon disulfide CS₂
7. nitrogen trichloride NCl₃
8. silicon tetrabromide SiBr₄
9. carbon dioxide CO₂
10. nitrogen trifluoride NF₃
11. boron trisulfide BS₃
12. sulphur trioxide SO₃
13. selenium tetrafluoride SeF₄
14. diphosphorus pentasulfide P₂S₅
15. xenon tetrafluoride XeF₄
16. sulfur dibromide SBr₂
17. carbon tetrachloride CCl₄
18. oxygen gas O₂
19. fluorine gas F₂
20. dinitrogen tetroxide N₂O₄

1. Nitric acid	
2. Chloric acid	
3. Acetic acid	
4. Hydrobromic acid	
5. Sulfurous acid	
6. Chlorous acid	
7. Hydrochloric acid	
8. Phosphoric acid	
9. Nitrous acid	
10. Hydrofluoric acid	
11. Perchloric acid	
12. Hydroiodic acid	
13. Phosphorous acid	
14. Carbonic acid	
15. Sulfuric acid	
16. HClO_4	
17. H_3PO_4	
18. $\text{HCl}_{(\text{aq})}$	
19. H_2SO_4	
20. HNO_2	
21. $\text{HI}_{(\text{aq})}$	
22. $\text{HC}_2\text{H}_3\text{O}_2$	
23. $\text{HF}_{(\text{aq})}$	
24. H_3PO_3	
25. HClO_3	
26. H_2CO_3	
27. H_2SO_3	
28. HClO_2	
29. HNO_3	
30. $\text{HBr}_{(\text{aq})}$	

KEY

1. Nitric acid	HNO_3
2. Chloric acid	HClO_3
3. Acetic acid	$\text{HC}_2\text{H}_3\text{O}_2$
4. Hydrobromic acid	HBr
5. Sulfurous acid	H_2SO_3
6. Chlorous acid	HClO_2
7. Hydrochloric acid	HCl
8. Phosphoric acid	H_3PO_4
9. Nitrous acid	HNO_2
10. Hydrofluoric acid	HF
11. Perchloric acid	HClO_4
12. Hydroiodic acid	HI
13. Phosphorous acid	H_3PO_3
14. Carbonic acid	H_2CO_3
15. Sulfuric acid	H_2SO_4

16. HClO_4	Perchloric Acid
17. H_3PO_4	Phosphoric Acid
18. $\text{HCl}_{(\text{aq})}$	Hydrochloric Acid
19. H_2SO_4	Sulfuric Acid
20. HNO_2	Nitrous Acid
21. $\text{HI}_{(\text{aq})}$	Hydroiodic Acid
22. $\text{HC}_2\text{H}_3\text{O}_2$	Acetic Acid
23. $\text{HF}_{(\text{aq})}$	Hydrofluoric Acid
24. H_3PO_3	Phosphorous Acid
25. HClO_3	Chloric Acid
26. H_2CO_3	Carbonic Acid
27. H_2SO_3	Sulfurous Acid
28. HClO_2	Chlorous Acid
29. HNO_3	Nitric Acid
30. $\text{HBr}_{(\text{aq})}$	Hydrobromic Acid

