

Chemical Formula and Names Worksheet

Match each name in the name list with the correct formula from the formula list.

NAME LIST

- | | |
|----------------------------------|---------------------------|
| (1) sodium nitrite | (16) magnesium oxide |
| (2) copper (II)oxide | (17) potassium sulphate |
| (3) sodium iodide | (18) magnesium nitride |
| (4) sulfur dioxide | (19) sodium nitrate |
| (5) hydrogen sulfide | (20) carbon tetrachloride |
| (6) magnesium phosphate | (21) potassium sulphite |
| (7) potassium hydrogen carbonate | (22) calcium chloride |
| (8) iron(III) chloride | (23) sodium sulphide |
| (9) sulphur trioxide | (24) sodium iodate |
| (10) iron(II) sulphide | (25) iron (III) oxide |
| (11) magnesium hydroxide | (26) magnesium nitrate |
| (12) sodium bisulphate | (27) sodium sulphate |
| (13) potassium carbonate | (28) ammonium hydroxide |
| (14) carbon monoxide | (29) iron(II) sulphate |
| (15) magnesium hydride | (30) carbon dioxide |

FORMULA LIST

- | | | |
|---------------------------------|--------------------|---|
| FeS | MgO | K ₂ SO ₄ |
| CaCl ₂ | NH ₄ OH | Mg(NO ₃) ₂ |
| CO ₂ | NaNO ₃ | Mg ₃ (PO ₄) ₂ |
| Na ₂ SO ₄ | NaIO ₃ | Mg(OH) ₂ |
| FeCl ₃ | CO | NaHSO ₄ |
| NaI | KHCO ₃ | Fe ₂ O ₃ |
| CuO | FeSO ₄ | Mg ₃ N ₂ |
| K ₂ SO ₃ | NaNO ₂ | SO ₃ |



Worksheet3: Chemical Names

Metal Non-Metal Compounds

If the name ends with an -ide, there will be usually only two elements in the compound, e.g. *sodium chloride* (NaCl). The metal part is named first and the non-metal part second. The non-metals name is changed to -ide to show that it is now joined in a compound.

So *sodium chloride* is made up of a sodium atom and a chlorine atom joined together by a chemical bond. The only exception to this rule is when the second word is *hydroxide* (OH⁻), when there will be three elements.

Complete this table:

Name	Elements present	Formula
sodium chloride	Sodium & Chlorine	NaCl
potassium oxide		KCl
	Potassium & Fluorine	
		Na ₂ O
	Sodium & carbon & oxygen	
potassium sulphide		
potassium hydroxide		



-ite and -ate

If the name ends in *-ite* or *-ate* there will be more than two elements in the compound and one of them will be oxygen.

e.g. *Copper Sulphate*, (CuSO₄) Contains copper, sulphur and oxygen (the *-ate* tells you)

The word endings *-ate* and *-ite* don't mean exactly the same thing. For example *sodium sulphate* and *sodium sulphite* are different chemicals. The one with the most oxygen in it's formula ends with *-ate* and the one with less oxygen ends in *-ite*.

e.g. NaNO₃ is *sodium sulphate* and NaNO₂ is *sodium sulphite*

Complete this table:

NAME	FORMULA
	K ₂ S
lead (II) nitrate	
	CaC ₂
Zinc (II) hydroxide	
	KNO ₃
calcium carbonate	
	K ₂ N
sodium sulphite	
	KNO ₂
Silver (I) nitrite	
	NaOH
calcium sulphide	



magnesium sulphate



Bi- compounds

Sometimes the *-ite* and *-ate* also include the word hydrogen, for example *sodium hydrogen sulphate*. This just means that as well as all the stuff you just worked out before, the compound also contains hydrogen. (NaHSO_4). Some people still use an older way of naming these which is to use the word bi- to instead of the word hydrogen.

e.g. NaHCO_3 could be *sodium hydrogen carbonate* or *sodium bi-carbonate*

Complete this table:

Name	Formula
potassium hydrogen carbonate	
	NaHSO_4
calcium bi-carbonate	

Metals

Some metals can form more than one compound with another element. e.g. Iron can form two different compounds with chlorine: FeCl_2 and FeCl_3 .

The modern way to tell them apart is to use a Roman numeral after the metals name to show what charge the metal ion has, e.g. FeCl_2 is *iron (II) chloride* and FeCl_3 is *iron (III) chloride*.

There is another and older way which is still used by some people and that is to use the latin name for the element and putting *-ic* after the the higher charge and *-ous* after the lower charge.

Formula	Modern Name	Old Name
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Fe₂O₃

iron (II) oxide

ferric bromide

FeS

iron (III)
hydroxide

ferrous sulphate

Non-Metal Compounds

Sometimes two non-metal elements bond together to form different compounds like CO and CO₂.

They both can't be carbon oxide so we need to give them different names. We do this by giving them Greek prefixes:

mono one

di two

tri three

tetra four

Complete this table:

Name	Formula
Carbon dioxide	CO
Nitrogen Oxide	NO ₂
carbon tetrachloride	SO ₃
sulphur dioxide	

