**What’s in a formula?**

(to accompany video)

Correct chemical formulas are very important. As this sheet will show, there is a big difference between H2O and H2O2, just to give one example.

**1. Iron and sulfur**

**Question**: If iron and sulfur react to form a compound, will the compound be magnetic? Will it be a hard, tough solid?

Iron description: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Sulfur description: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Several compounds of iron and sulfur are displayed for you. For each compound, fill in a row of the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Formula** | **Magnetic?**  | **Description**  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

What conclusions can you draw?

Are the properties of a compound an average of those of the element?

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Do all compounds of iron and sulfur behave the same?

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What patterns are there in the naming system of elements?

What will be the difference between zinc carbide and zinc carbonate?

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What will the name of the compound formed from aluminium and nitrogen be? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What will the name of the compound formed from aluminium, nitrogen and oxygen be? \_\_\_\_\_\_\_\_\_\_

**2. Salt**

Salt has a formula NaCl. It is quite edible and is often added to food. It is safe to handle.

Salt is made from sodium and chlorine. Research the properties of sodium and chlorine.

Sodium properties \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Chlorine properties \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Conclusion**: Are the properties of a compound a combination of the elements it is made from?

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**3. H2O vs H2O2**

 Describe the appearance of both H2O and H2O2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MnO2 is added to a sample of both water and hydrogen peroxide. What do you observe?

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Can you write an equation for the reaction which occurred in the H2O2?

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Uses of hydrogen peroxide. Google its uses. What are they? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Conclusion: Does the change in formula (H2O vs H2O2) make much difference?

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Test what you have learnt. Write balanced equations for the following reactions.

Mg + O2 🡪 magnesium oxide

FeCl2  + chlorine gas 🡪 FeCl3

N2 + H2 🡪 NH3