Chemical Names And Formulas Answer Key

Name _____

Chemistry Worksheet
Naming & Formula Writing (Ionic)

Instructions: Write the formulas &/or the names for the compounds listed below

1. Sodium nitrate _____
2. Calcium carbonate _____
3. Magnesium oxide _____
4. Ammonium sulfide _____
5. Lead (II) sulfate _____
6. Sodium cyanide _____
7. Potassium hydroxide _____
8. Silver chloride _____
9. Iron (III) hydroxide _____
10. Potassium hydroxide _____
11. Tin (IV) perchlorate _____
12. Potassium carbonate _____
13. Silver nitrate _____
14. Sodium iodide _____
15. Ammonium hydroxide _____
16. Potassium iodate _____
17. Lead (IV) oxide _____
18. Ammonium hydroxide _____
19. Barium sulfate _____
20. barium chloride _____
21. Cobalt (II) chloride _____
22. Sodium carbonate _____
23. Calcium oxide _____
24. Lead (II) nitrate _____
25. Tin (II) chloride _____
26. Aluminum chloride _____
27. Iron (III) hydroxide _____
28. Sodium acetate _____
29. calcium hydroxide _____
30. sodium iodate _____
31. Nickel (II) nitrate _____
32. Iron (II) chloride _____
33. Magnesium bromide _____
34. Ammonium nitrate _____
35. Silver bromide _____
36. $Al(OH)_3$ _____
37. NH_4I _____
38. Li_2CO_3 _____
39. $CuSO_4$ _____
40. KCN _____
41. $Pb(ClO)_2$ _____
42. BaS _____
43. $ZnSO_4$ _____
44. $Pb(CH_3COO)_2$ _____
45. $Ca(NO_3)_2$ _____
46. $Fe_2(CO_3)_3$ _____
47. NH_4IO_3 _____
48. $CaCl_2$ _____
49. NaF _____
50. $Cu(NO_3)_2$ _____

Chemical Names and Formulas Answer Key

Understanding chemical names and formulas is essential in the study of chemistry. It helps communicate the identity and composition of substances effectively. This article serves as a comprehensive guide to chemical names and formulas, explaining the conventions, the significance of each part, and providing an answer key to common chemical names and their corresponding formulas.

Understanding Chemical Names

Chemical names are systematic names given to chemical compounds based on

established nomenclature rules. These names are critical for identifying substances in scientific literature, laboratories, and industry.

Types of Chemical Names

1. IUPAC Names: The International Union of Pure and Applied Chemistry (IUPAC) provides systematic names for organic and inorganic compounds. These names follow specific rules to reflect the structure and composition of the molecule.

2. Common Names: These are names that are widely accepted in everyday language. They may not always reflect the chemical structure or composition accurately. For example, water is commonly referred to as "water," but its IUPAC name is dihydrogen monoxide (H_2O).

3. Trade Names: These names are often used by companies for marketing purposes. For example, "Tylenol" is a trade name for acetaminophen, a common analgesic.

The Importance of Chemical Formulas

Chemical formulas provide a concise way to represent the composition of a compound. They indicate the types and numbers of atoms involved in a substance, allowing scientists to understand its properties and reactions.

Types of Chemical Formulas

1. Empirical Formula: This formula shows the simplest whole-number ratio of atoms in a compound. For example, the empirical formula for hydrogen peroxide (H_2O_2) is HO.

2. Molecular Formula: This formula shows the actual number of atoms of each element in a molecule. For hydrogen peroxide, the molecular formula is H_2O_2.

3. Structural Formula: This formula illustrates how atoms are arranged in a molecule. It provides information about the bonds between atoms. For example, the structural formula for ethanol (C_2H_5OH) shows the arrangement of carbon, hydrogen, and oxygen atoms.

Components of Chemical Formulas

Understanding the components of chemical formulas is crucial for interpreting and writing them accurately.

Elements and Symbols

Each chemical element is represented by a unique symbol, usually derived from its English or Latin name. For example:
- Hydrogen (H)
- Oxygen (O)
- Carbon (C)
- Sodium (Na from Natrium)

Subscripts and Coefficients

- Subscripts: These are numbers written just below the line of the symbol to indicate the number of atoms of that element in a molecule. For example, in H_2O, the "2" indicates there are two hydrogen atoms.

- Coefficients: These are numbers placed before the chemical formula to indicate the number of molecules or moles of the compound. For example, in $2H_2O$, the "2" indicates there are two water molecules.

Common Chemical Names and Formulas Answer Key

Below is a list of common chemical substances, their names, and corresponding formulas. This answer key serves as a reference for students and professionals in chemistry.

Chemical Name	Chemical Formula
Water	H_2O
Carbon Dioxide	CO_2
Sodium Chloride	$NaCl$
Glucose	$C_6H_{12}O_6$
Ethanol	C_2H_5OH
Ammonia	NH_3
Acetic Acid	$C_2H_4O_2$
Calcium Carbonate	$CaCO_3$
Hydrochloric Acid	HCl
Sulfuric Acid	H_2SO_4
Methane	CH_4
Hydrogen Peroxide	H_2O_2
Potassium Nitrate	KNO_3
Iron(III) Oxide	Fe_2O_3
Magnesium Sulfate	$MgSO_4$
Sodium Bicarbonate	$NaHCO_3$
Nitric Acid	HNO_3
Phosphoric Acid	H_3PO_4
Bicarbonate Ion	HCO_3^-

| Acetylene | C_2H_2 |

Writing Chemical Formulas

To write chemical formulas, follow these steps:

1. Identify the Elements: Determine which elements are present in the compound.

2. Determine the Ratios: For ionic compounds, use the charges of the ions to find the simplest ratio. For covalent compounds, consider how many atoms of each element are needed to achieve stability.

3. Use Correct Symbols and Subscripts: Write the symbols for the elements with the appropriate subscripts to indicate the number of each atom.

4. Check for Simplification: Ensure that the formula is in its simplest form.

Examples of Writing Chemical Formulas

1. Water (H_2O):
- Identify: Hydrogen (H) and Oxygen (O).
- Ratio: Two hydrogen atoms for every one oxygen atom.
- Formula: H_2O.

2. Sodium Chloride (NaCl):
- Identify: Sodium (Na) and Chlorine (Cl).
- Ratio: One sodium atom for every one chlorine atom.
- Formula: NaCl.

3. Sulfuric Acid (H_2SO_4):
- Identify: Hydrogen (H), Sulfur (S), and Oxygen (O).
- Ratio: Two hydrogen atoms, one sulfur atom, and four oxygen atoms.
- Formula: H_2SO_4.

Conclusion

A solid understanding of chemical names and formulas is critical for anyone studying or working in the field of chemistry. This article provided an overview of the importance of chemical names, formulas, and the systematic approach to writing them. The answer key included in this article serves as a useful reference for common compounds and their corresponding names and formulas. Mastery of this knowledge is not only fundamental for academic success but also essential for practical applications in various scientific and industrial fields.

Frequently Asked Questions

What is the chemical formula for water?

H2O

What is the chemical name for NaCl?

Sodium chloride

What is the formula for carbon dioxide?

CO2

What is the IUPAC name for C6H12O6?

Glucose

What is the chemical formula for sulfuric acid?

H2SO4

What is the common name for NH3?

Ammonia

Chemical Names And Formulas Answer Key

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Acetanilide | C8H9NO | CID 904 - structure, chemical names, physical and chemical properties, classification, patents, literature, biological activities, safety/hazards/toxicity information, ...

ADONA | C7H2F12O4 | CID 52915299 - PubChem
ADONA | C7H2F12O4 | CID 52915299 - structure, chemical names, physical and chemical properties, classification, patents, literature, biological activities, safety/hazards/toxicity ...

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Hydrochloric Acid | HCl | CID 313 - PubChem
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Perfluorooctanesulfonic acid | C8F17SO3H | CID 74483 - PubChem
Perfluorooctanesulfonic acid | C8F17SO3H or C8HF17O3S | CID 74483 - structure, chemical names, physical and chemical properties, classification, patents, literature, biological activities, …

Sodium Hydroxide | NaOH | CID 14798 - PubChem
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Hydrochloric Acid | HCl | CID 313 - PubChem
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